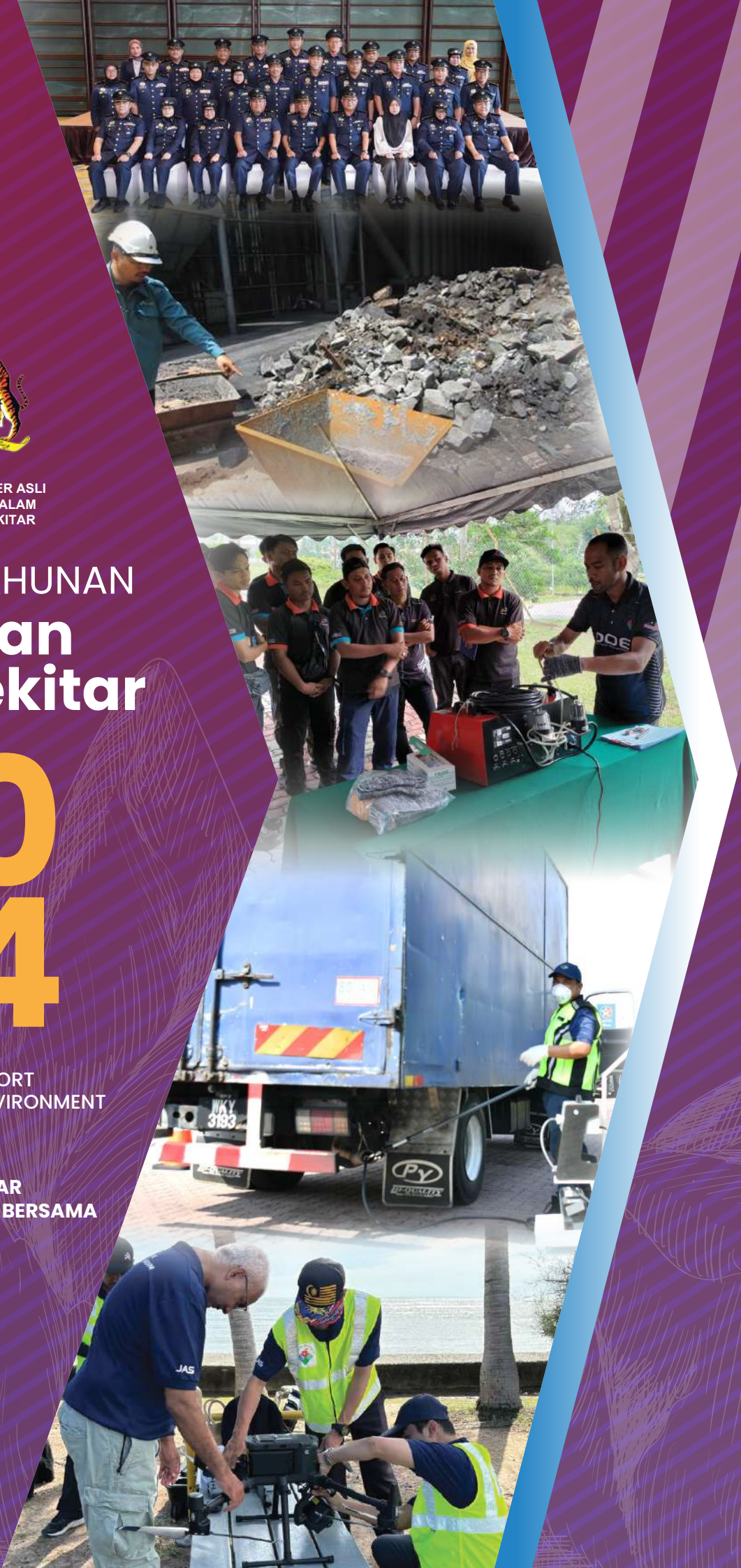


KEMENTERIAN SUMBER ASLI
DAN KELESTARIAN ALAM
JABATAN ALAM SEKITAR

LAPORAN TAHUNAN

Jabatan Alam Sekitar

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ANNUAL REPORT
DEPARTMENT OF ENVIRONMENT

ALAM SEKITAR
TANGGUNGJAWAB BERSAMA

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Department of Environment, Malaysia
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Prakata Preface

Jabatan Alam Sekitar dengan sukacitanya membentangkan Laporan Tahunan 2024 yang merangkumi pencapaian dan pelaksanaan program pada tahun tersebut. Selari dengan misi Jabatan ini, "Memastikan Pembangunan Lestari di Dalam Proses Memajukan Negara" dan visi "Pemuliharaan Alam Sekitar Untuk Kesejahteraan Rakyat", JAS meneruskan mandat yang diberi untuk mentadbir Akta Kualiti Alam Sekeliling, 1974.

The Department of Environment wishes to present the 2024 Annual Report which provides an account of its achievements and programme implementations in that year. In line with the department's mission "To Ensure Sustainable Development in the Process of Nation Building" and vision, "Environmental Conservation for the Wellbeing of the People", DOE continues its mandate to administer the Environmental Quality Act (EQA), 1974.

> "**JAS terus mempromosi program kesedaran dan pendidikan alam sekitar serta penyebaran maklumat kepada pelbagai peringkat masyarakat sebagai usaha berterusan dalam membangunkan masyarakat mesra alam di negara ini.**
> DOE continues to promote environmental education and awareness programmes as well as disseminate information to various levels of the society towards building an environmentally friendly society in the country."

Penekanan yang berterusan diberikan dalam usaha mencegah dan mengawal pencemaran air, pencemaran udara dan pengurusan buangan terjadual. Pemeriksaan ke atas punca-punca pencemaran dan tindakan undang-undang telah diambil ke atas pihak-pihak yang melakukan kesalahan.

Continued emphasis is given to the prevention and control of water pollution, air pollution and schedule waste management. Inspections on pollution sources have been intensified and improved. Legal actions have also been taken against environmental offenders.

Sejumlah 499 laporan EIA telah diterima dan diproses oleh JAS pada tahun 2024. Daripada bilangan ini, sebanyak 460 laporan bagi aktiviti yang tertakluk di bawah Jadual Pertama, Perintah Kualiti Alam Sekeliling (Aktiviti Yang Ditetapkan) (Penilaian Kesan Kepada Alam Sekeliling) 2015, dan 39 laporan bagi aktiviti yang tertakluk di bawah Jadual Kedua perintah tersebut.

A total of 499 EIA reports were received and processed by the DOE in 2024. Of these, 460 were reports of activities specified in this First Schedule of Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 2015, and 39 reports were of activities that are subject to the Second Schedule of the order.

Pada tahun 2024, sejumlah 409 kesalahan di bawah Akta Kualiti Alam Sekeliling 1974 (AKAS 1974) telah didakwa di mahkamah dan telah disabitkan kesalahan dengan denda yang dikenakan berjumlah RM 8,441,400.00.

In 2024, a total of 409 offences under the Environmental Quality Act 1974 (EQA 1974) were prosecuted in court and were convicted with fines totalling RM 8,441,400.00.

JAS terus mempromosi program kesedaran dan pendidikan alam sekitar serta penyebaran maklumat kepada pelbagai peringkat masyarakat sebagai usaha berterusan dalam membangunkan masyarakat mesra alam di negara ini.

DOE continues to promote environmental education and awareness programmes as well as disseminate information to various levels of the society towards building an environmentally friendly society in the country.

Saya ingin mengambil kesempatan ini untuk merakamkan penghargaan kepada semua pihak yang telah memberikan sokongan dan komitmen mereka kepada JAS dalam melaksanakan tugas murni untuk alam sekitar yang sihat dan lestari serta meningkatkan kualiti kehidupan.

I would like to take this opportunity to express my appreciation to everyone who has given their support and commitment to the DOE in carrying out its duties for a sustainable, healthy environment and enhanced quality of life.

"Alam Sekitar, Tanggungjawab Bersama"

"Environment, Our Shared Responsibility"



DATO' WAN ABDUL LATIFF BIN WAN JAFFAR
Ketua Pengarah Jabatan Alam Sekitar
Director-General, Department of Environment





BAB
CHAPTER
01

MAKLUMAT KORPORAT
CORPORATE PROFILE



PENGENALAN
INTRODUCTION

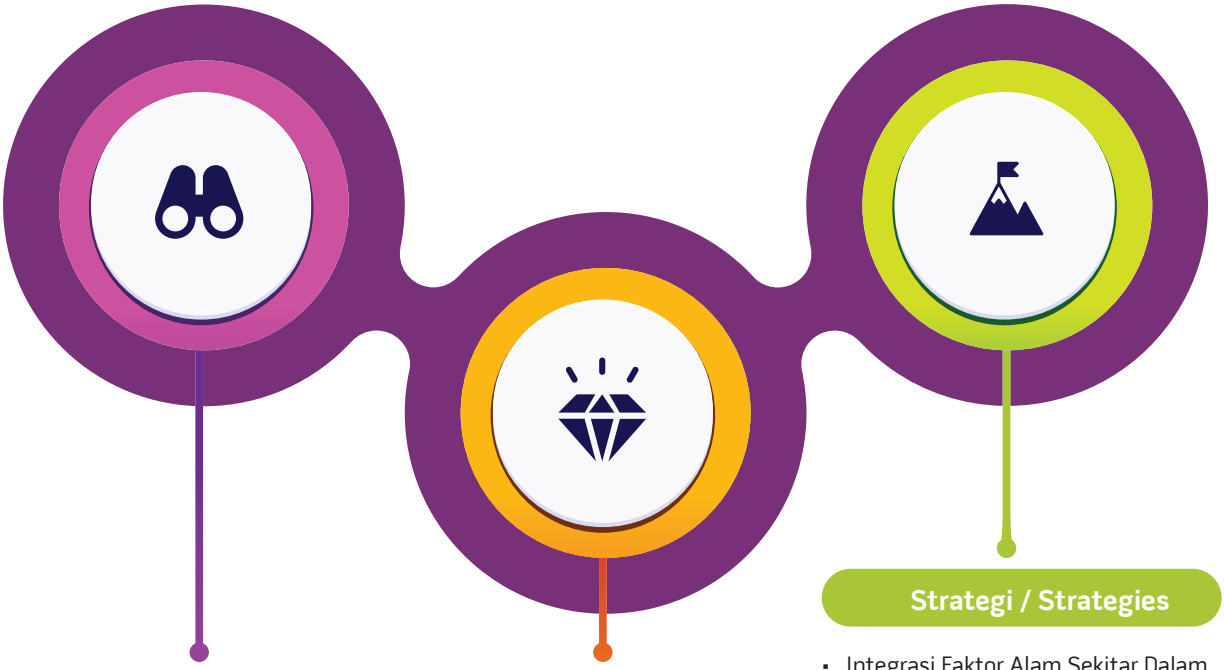
Akta Kualiti Alam Sekeliling (AKAS) 1974, telah diwartakan pada Mac 1974 dan mula dikuatkuasakan pada 15 April 1975. Penguatkuasaan AKAS 1974 ini mewujudkan keperluan untuk menubuhkan satu agensi yang bertanggungjawab dalam melaksanakan tugas tersebut. Jabatan Alam Sekitar (JAS) adalah agensi kerajaan yang bertanggungjawab dalam menguruskan isu-isu berkaitan alam sekitar, melaksanakan penguatkuasaan terhadap pencemaran alam sekitar dan merancang kawalan pencemaran seperti yang ditetapkan dalam AKAS 1974.

JAS pertama kali ditubuhkan sebagai Bahagian Alam Sekitar di bawah Kementerian Kerajaan Tempatan dan Alam Sekitar pada 15 April 1975. Bahagian ini kemudian dipindahkan di bawah Kementerian Sains, Teknologi dan Alam Sekitar pada Mac 1976. Demi menjaga dan memulihara alam sekitar, Bahagian Alam Sekitar dinaiktaraf menjadi Jabatan Alam Sekitar Malaysia pada 1 September 1983. Pada Mac 2004, JAS diletakkan di bawah Kementerian Sumber Asli dan Alam Sekitar. Pada tahun 2018, JAS ditempatkan di bawah naungan Kementerian Tenaga, Sains, Teknologi, Alam Sekitar dan Perubahan Iklim dan seterusnya pada Mac 2020, JAS berada di bawah Kementerian Alam Sekitar dan Air. Kini JAS bernaung di bawah Kementerian Sumber Asli dan Kelestarian Alam.

The Environmental Quality Act (EQA) 1974 was promulgated in March 1974 and came into force on 15 April 1975. The enforcement requirements of EQA 1974 led to the establishment of an agency responsible for carrying out these tasks. The Department of Environment (DOE) is a government agency responsible for managing environmental issues, enforcing regulations on environmental pollution sources, and planning pollution control measures under EQA 1974.

DOE was initially established as the Environmental Division under the Ministry of Local Government and Environment on 15 April 1975. The division was later placed under the Ministry of Science, Technology and Environment in March 1976. In recognition of the importance of environmental conservation and preservation, the Environmental Division was upgraded to a Department known as the Department of Environment Malaysia on 1 September 1983. In March 2004, DOE was placed under the Ministry of Natural Resources and Environment. In 2018, it was placed under the auspices of the Ministry of Energy, Science, Technology, Environment and Climate Change and subsequently in March 2020 DOE was placed under the Ministry of Environment and Water. Now, DOE is one of the agencies under the Ministry of Natural Resources and Environmental Sustainability.

Visi, Misi & Strategi
Vision, Mission & Strategies



Visi / Vision

Memastikan Pembangunan Lestari di dalam Proses Memajukan Negara
To Ensure Sustainable Development in the Process of Nation Building

Misi / Mission

Pemuliharaan Alam Sekitar untuk Kesejahteraan Rakyat
Environmental Conservation for the Well-being of the People

Strategi / Strategies

- Integrasi Faktor Alam Sekitar Dalam Perancangan Pembangunan
  Integration of Environmental Factors in Development Planning
- Pencegahan dan Kawalan Pencemaran
  Pollution Prevention and Control
- Promosi Pendidikan dan Kesedaran Alam Sekitar
  Promotion of Environmental Education and Awareness
- Kerjasama dan Hubungan Dua Hala, Serantau dan Antarabangsa
  Bilateral, Regional and International Cooperation
- Penyertaan Awam Dalam Pengurusan Alam Sekitar
  Public Participation in Environmental Management
- Kerjasama Antara Agensi dan Persekutuan Negeri
  Inter-Agency and Federal State Cooperation
- Pembangunan Lestari Melalui Pemuliharaan Sumber Semulajadi
  Sustainable Development Through Conservation of Resources

Logo Jabatan / Department's Logo

Reka bentuk ini terdiri daripada sepasang tangan dan bunga kebangsaan, iaitu Bunga Raya.

Ia juga berkonsepkan bentuk gasing serta wau (layang-layang) yang merupakan simbol kebangsaan dan menggambarkan identiti kebangsaan.

The design consists of a pair of hands and the national flower, Hibiscus.

It incorporates the shapes of Gasing (top) and Wau (kite) into the concept which symbolize national identity.



Pengertian Simbolik Logo
Symbolic Meaning of the Logo

Gasing Yang Berputar - Ia mengambarkan kedinamikan, kejujuran dan pendekatan seimbang JAS dalam perlindungan alam sekitar.

Layang-layang Yang Meninggi - Ia menggambarkan peningkatan kesedaran nasional terhadap alam sekitar.

Sepasang Tangan - Sepasang tangan melambangkan perlindungan alam sekitar dan pemuliharaan warisan semula jadi. Ia juga merupakan keupayaan JAS untuk menjaga dan untuk menguatkuasakan.

Bunga Raya - Ia adalah simbol kebangsaan yang mengambarkan semangat patriotisme dan keberanian dalam menghadapi cabaran yang mendatang.

Keseluruhan - Unsur-unsur semulajadi, termasuk akuatik daratan, dan suasana yang diwakili oleh gelombang air(akuatik), bunga raya(daratan) dan biru langit (atmosfera)

Spinning Top - It depicts the dynamism, honesty, and balanced approach of environmental protection by DOE.

Kite Flying High - It represents the increase in environmental awareness among citizens.

A Pair of Hands – It symbolizes environmental preservation and natural heritage conservation. It also represents DOE's ability to protect and conduct enforcement.

Hibiscus - It is a national symbol that depicts the spirit of patriotism and courage in facing future challenges.

Wholeness - Natural elements, including land, aquatic, and atmosphere which are represented by waves (aquatic), hibiscus (land), and blue sky (atmospheric).

Pengertian Warna Logo / Meaning of the Logo Colour

Hijau - Melambangkan persekitaran hijau, perlindungan dan pemuliharaan semula jadi terutamanya tumbuh-tumbuhan semulajadi termasuk gunung dan bukit.

Biru - Air yang bersih dan udara bersih, perlindungan dan pemuliharaan sumber air dan udara bersih termasuk lapisan ozon.

Merah - Bersemangat dan keberanian dalam menguatkuasakan undang-undang dan peraturan mengenai perlindungan alam sekitar

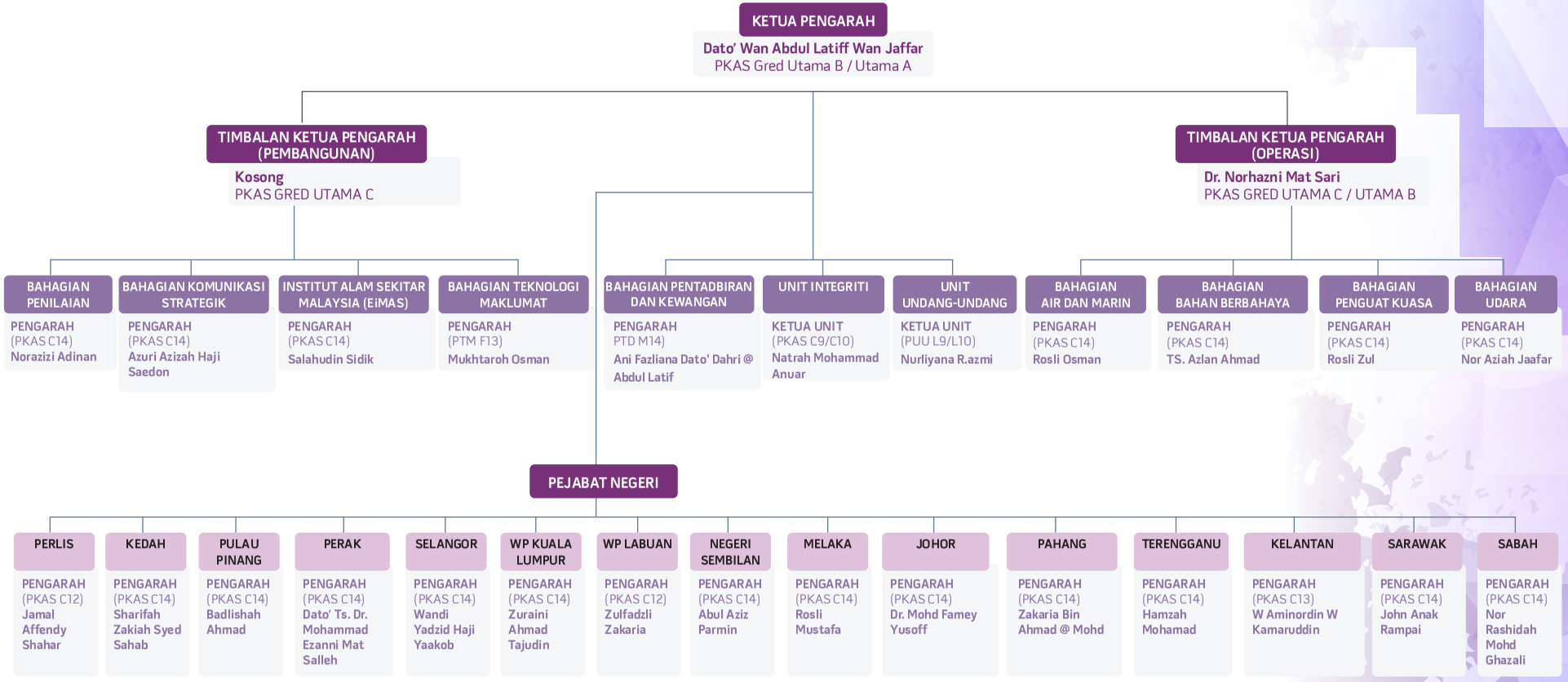


Green - Symbolizes green environment, protection, and natural conservation especially flora including mountains and hills.

Blue - Clean water and air, protection and conservation of water resources and air including the ozone layer.

Red - Enthusiasm and courage in enforcing laws and regulations for environmental protection.

Carta Organisasi / Organization Chart



Pengurusan Sumber Manusia dan Kewangan
Human Resources and Financial Management

PERBELANJAAN PEMBANGUNAN JAS 2024

Jabatan Alam Sekitar telah menerima peruntukan pembangunan sebanyak RM98,009,000.00 bagi Tahun 2024. Dengan peruntukan sedemikian, sebanyak 17 projek telah berjaya dilaksanakan dengan prestasi perbelanjaan sebanyak 99.51%.

PERBELANJAAN PERUNTUKAN MENGURUS 2024

Peruntukan Mengurus yang telah diluluskan bagi tahun 2024 adalah sebanyak RM134,407,400.00. Manakala, Peruntukan Dipinda pada 31 Disember 2024 adalah sebanyak RM135,248,295.28. Anggaran Peruntukan Mengurus Tahun 2024 mengikut Objek Am adalah seperti di **Jadual 1.1**.

DEVELOPMENT EXPENDITURE OF DOE IN 2024

Department of Environment received an allocation of RM98,009,000.00 for development expenditure in 2024. With that allocation, 17 projects were successfully completed, with performance expenditure at 99.51%..

OPERATING EXPENDITURE 2024

The approved Operating Expenditure for 2024 was RM134,407,400.00. However, this was amended on 31 December 2024 to RM135,248,295.28. The estimated Operating Expenditure for 2024 is shown in **Table 1.1**.

Jadual 1.1: Perbelanjaan Peruntukan Mengurus 2024
Table 1.1: Operating Expenditure 2024

OBJEK AM (OA) GENERAL OBJECT	PERIHAL OBJEK AM DESCRIPTION OF GENERAL OBJECT	PERUNTUKAN DILULUSKAN APPROVED ALLOCATION (RM)	PERUNTUKAN DIPINDA AMENDED ALLOCATION (RM)
10000	Emolumen / Emolument	99,166,000.00	101,065,485.78
20000	Perkhidmatan & Bekalan Services and Supplies	32,761,400.00	31,742,600.59
30000	Aset / Assets	1,250,000.00	1,210,320.85
40000	Pemberian dan Kenaan Bayaran Tetap Grants and Fixed Charges	1,230,000.00	1,229,888.06
	JUMLAH KESELURUHAN OVERALL TOTAL	**134,407,400.00**	**135,248,295.28**

PENGURUSAN SUMBER MANUSIA

- Jumlah perjawatan di Jabatan Alam Sekitar sehingga 31 Disember 2024 ialah 1527 dengan pengisian sejumlah 1412 bersamaan dengan 92.47%.
- Selaras dengan konsep pembelajaran secara berterusan, semua warga kerja JAS digalakkan mengikuti pelbagai kursus yang dianjurkan. Bagi tahun 2024, 100 % daripada keseluruhan bilangan anggota JAS telah menjalani kursus melebihi 5 hari dengan jayanya.
- Seramai 112 pegawai Jabatan telah diraikan dalam Majlis Anugerah Perkhidmatan Cemerlang Tahun 2024 yang diadakan pada 28 Mei 2024 bertempat di Dewan Sri Baiduri, Wisma Sumber Asli.

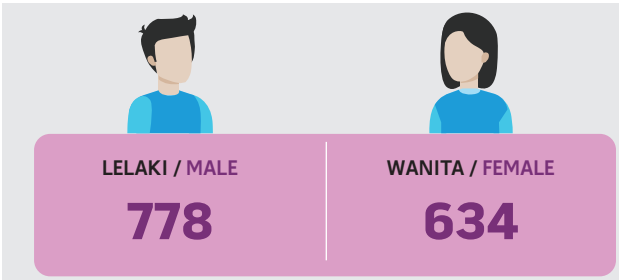
HUMAN RESOURCES MANAGEMENT

- The total number of positions in the Department of Environment until 31 December 2024 is 1527 with a total of 1412 filling equal to 92.47%.
- In line with the concept of continuous learning, all DOE employees are encouraged to attend various organized courses. For the year 2024, 100% of the total number of DOE members have successfully undergone courses more than 5 days.
- A total of 112 officers were celebrated in the 2024 Excellent Service Award Ceremony held on 28 May 2024 at Dewan Sri Baiduri, Wisma Sumber Asli.

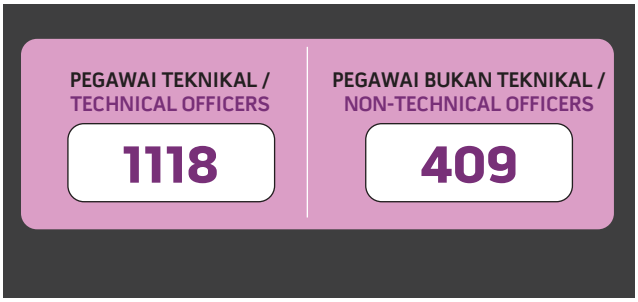
Jadual 1.2: Maklumat Pengurusan Sumber Manusia JAS 2024
Table 1.2: DOE Human Resources Management Information 2024

PERATUSAN PENGISIAN PERJAWATAN THE PERCENTAGE OF OCCUPANCY 92.47	PERATUSAN PEGAWAI MENGHADIRI KURSUS THE PERCENTAGE OF OFFICERS WHO ATTENDED COURSES 100%	ANUGERAH PERKHIDMATAN CEMERLANG (APC) / EXCELLENT SERVICE AWARDS (ESA)
Perjawatan JAS sehingga 31 Disember 2024 Occupancy as at 31st December 2024 **Jumlah Perjawatan:** Positions: **1,527** **Kekosongan yang Diisi:** Occupied: **1,412** **Kekosongan:** Vacancy: **115**	• Semua pegawai JAS telah menghadiri kursus selama 5 hari dan lebih pada tahun 2024. / All DOE officers attended courses for 5 days or more in 2024.	• 112 orang pegawai JAS menerima APC pada tahun penilaian 2023 / 112 DOE officers received ESA in the evaluation year of 2023. • Majlis APC Jabatan Alam Sekitar 2023 telah diadakan pada 28 Mei 2024 / The Department of Environment ESA 2023 event was held on 28 May 2024.

Jadual 1.3: Pecahan Pegawai JAS mengikut Jantina
Table 1.3: Breakdown of DOE Officers by Gender



Jadual 1.4: Pecahan mengikut Perjawatan Pegawai
Table 1.4: Breakdown of Positions



KURSUS SMART AND GLOBAL LEADERSHIP JABATAN ALAM SEKITAR TAHUN 2024

Kursus Smart and Global Leadership Jabatan Alam Sekitar Tahun 2024 telah diadakan pada 29 hingga 31 Januari 2024 bertempat di Avillion Port Dickson, Negeri Sembilan. Pelaksanaan kursus ini adalah selaras dengan *JAS Training Road Map* yang diputuskan dalam Mesyuarat Jawatankuasa Latihan Bil. 2 Tahun 2023 lalu.

Kursus selama 3 hari 2 malam ini disasarkan kepada pegawai kanan gred 48 dan ke atas dengan objektif untuk memberikan pendedahan kepada para peserta untuk memahami dan mengenal karakter dan gaya kepimpinan diri. Ia juga memberikan pendedahan dan mengasah kemahiran dalam perbincangan di antara pemimpin organisasi bagi memastikan kaedah yang sistematik dapat diambil dalam mengurangkan risiko konflik.

Jumlah pegawai kanan yang terlibat adalah seramai 42 orang. Majoriti peserta telah memberikan respon dan maklumbalas yang sangat baik terhadap pelaksanaan kursus ini.

THE SMART AND GLOBAL LEADERSHIP COURSE OF THE DEPARTMENT OF ENVIRONMENT FOR THE YEAR 2024

The Smart and Global Leadership Course of the Department of Environment for the year 2024 was held from 29 to 31 January 2024, at Avillion Port Dickson, Negeri Sembilan. The implementation of this course is in line with the JAS Training Road Map decided in the Training Committee Meeting No. 2 2023.

This 3 days, 2 nights course is aimed at senior officers' grade 48 and above, with the objective of providing exposure to participants to understand and recognise their own leadership character and style. It also offers insights and hones skills in discussions between organisational leaders to ensure that a systematic approach can be taken to reduce the risk of conflict.

A total of 42 senior officers were involved. Most of the participants gave positive responses and feedback regarding the implementation of this course.



▲ Aktiviti di Kursus *Smart and Global Leaders* / Activities at the Smart and Global Leaders Course
□ 29 hingga 31 Januari 2024 / 29 to 31 January 2024

ANUGERAH PERKHIDMATAN CEMERLANG (APC) 2023

Majlis Anugerah Perkhidmatan Cemerlang JAS Tahun 2023 telah diadakan pada 28 Mei 2024 lalu bertempat di Dewan Sri Baiduri Wisma Sumber Asli. Pelaksanaan Majlis APC ini adalah kali kedua dianjurkan oleh Jabatan Alam Sekitar lanjutan daripada keputusan pihak Kementerian untuk menyerahkan pelaksanaan Majlis APC untuk dilaksanakan Jabatan masing-masing.

Majlis ini telah dilaksanakan secara sederhana tetapi meriah dan seramai 112 orang pegawai JAS telah terpilih untuk menerima penganugerahan ini.

EXCELLENT SERVICE AWARDS (ESA) 2023

The DOE Excellent Service Award Ceremony 2023 was held on 28 May 2024 at Dewan Sri Baiduri Wisma Sumber Asli. The Department of Environment has organised this ceremony for the second time following the Ministry's decision to hand over the implementation of the ceremony to the respective Departments.

This ceremony was carried out in a simple but lively manner and a total of 112 DOE officers were selected to receive this award.



▲ Majlis Anugerah Perkhidmatan Cemerlang JAS 2023 / DOE Excellent Service Award Ceremony 2023

KURSUS PEMANTAPAN PROFESIONALISME

Pada 19 hingga 21 Ogos 2024, Bahagian Pentadbiran dan Kewangan melalui Seksyen Sumber Manusia telah menganjurkan Kursus Pemantapan Profesionalisme JAS 2024 bertempat di Pangkor Village Beach Resort, Perak. Kursus ini terbuka kepada semua pegawai gred 29 sehingga Gred 44.

Kursus Pemantapan Profesionalisme JAS ini dilaksanakan dengan objektif utama seperti di bawah:

- Meningkatkan keupayaan dan kemahiran kepimpinan kepada para pegawai Jabatan
- Mewujudkan pembudayaan organisasi cemerlang di kalangan pegawai dan kakitangan JAS
- Mengukuhkan jalinan hubungan profesional dan kerjasama yang baik sesama warga Jabatan
- Membantu warga Jabatan untuk bukan sahaja sihat dari sudut fizikal, tetapi juga sihat dari sudut pengurusan emosi; dan
- Meningkatkan kemahiran komunikasi dalam organisasi

PROFESSIONALISM STRENGTHENING COURSE

On 19 to 21 August 2024, the Administration and Finance Division through the Human Resources Section organised the DOE Professionalism Strengthening Course located at Pangkor Village Beach Resort, Perak. This course is open to all officers of grade 29 to grade 44.

This DOE Professionalism Strengthening Course is implemented with the main objectives as below:

- Improve the ability and leadership skills of Department officials;
- Create an excellent organisational culture among DOE officers and staff;
- Strengthen professional relationships and good cooperation among Department members;
- Assist the officers of the Department to not only be healthy physically, but also emotionally; and
- Improve communication skills in the organisation.



▲ Aktiviti di Kursus Pemantapan Profesionalisme, 19 hingga 21 Ogos 2024 / Activities at the Professionalism Strengthening Course, 19 to 21 August 2024

KURSUS PEMERKASAAN ORGANISASI

Kursus Pemerkasaan Organisasi Jabatan Alam Sekitar Tahun 2024 telah diadakan pada 23 hingga 25 Julai 2024 bertempat di Tadom Hill Resort, Banting, Selangor. Pelaksanaan kursus ini adalah selaras dengan *JAS Training Road Map* yang diputuskan dalam Mesyuarat Jawatankuasa Latihan Bil. 2 Tahun 2023 lalu.

Kursus anjuran Seksyen Sumber Manusia, Jabatan Alam Sekitar ini dikendalikan oleh Tadom Hill Resort dan telah melibatkan seramai 44 orang pegawai dan kakitangan JAS seluruh Malaysia.

Kursus selama 3 hari 2 malam ini disediakan bagi memberikan pendedahan kepada peserta dari gred 11 hingga 29 untuk memahami langkah membudayakan kerja berpasukan bagi mencapai matlamat organisasi. Kursus ini juga menekankan tentang pembudayaan semangat bekerjasama dan membina budaya kreatif dan inovatif dalam menghasilkan prestasi cemerlang terutama bagi pegawai lantikan baru dan pegawai yang baru bertukar masuk ke Jabatan Alam Sekitar.

Memahami sikap dan cara berkomunikasi akan membantu para peserta untuk menjadi pegawai yang memiliki komitmen yang tinggi serta memupuk semangat kerja berpasukan.

ORGANISATIONAL EMPOWERMENT COURSE

The Department of Environment Organisational Empowerment Course 2024 was held from 23 to 25 July 2024, at Tadom Hill Resort, Banting, Selangor. The implementation of this course is in line with the JAS Training Road Map decided in the Training Committee Meeting No. 2 of 2023.

This course, organised by the Human Resources Section of the Department of Environment, was conducted by Tadom Hill Resort and involved a total of 44 officers and staff from DOE across Malaysia.

This 3 days, 2 nights course is designed to provide exposure to participants from grade 11 to 29 to understand the steps to cultivate teamwork in achieving organisational goals. The course also emphasises on the importance of fostering spirit of cooperation and building a creative and innovative culture to achieve excellent performance, especially for newly appointed officers and those who have recently transferred to the Department of Environment.

Understanding attitudes and communication methods will help participants to become employees with high level of commitment and foster team spirit.





▸ Kursus Pemerkasaan Organisasi JAS Tahun 2024, 23 hingga 25 Julai 2025 / The Department of Environment Organisational Empowerment Course 2024, held from 23 to 25 July 2024





MAJLIS KUALITI ALAM SEKELILING (EQC)

Penubuhan Majlis Kualiti Alam Sekeliling (EQC), diperuntukkan di bawah Seksyen 4, Akta Kualiti Alam Sekeliling (AKAS) 1974 dan tugas-tugasnya pada amnya menasihati Yang Berhormat Menteri mengenai perkara-perkara berhubung AKAS 1974 dan apa-apa yang dirujukkan kepadanya oleh YB Menteri.

YB Nik Nazmi bin Nik Ahmad, Menteri Sumber Asli dan Kelestarian Alam (NRES) telah melantik YBrs. Prof. Dr. Maketab bin Mohamed sebagai pengerusi Majlis Kualiti Alam Sekeliling (EQC) berkuat kuasa pada 30 Ogos 2024 sehingga 29 Ogos 2027.

Pengerusi EQC telah mengadakan kunjungan hormat kepada YB Menteri NRES pada 10 Oktober 2024 di Pusat Konvensyen Kuala Lumpur (KLCC) dan beberapa perkara berkaitan peranan EQC dalam menasihati YB Menteri bagi perkara berkaitan alam sekitar turut dibincangkan.

Satu sesi taklimat berkenaan peranan dan skop bidang tugas JAS secara terperinci kepada Pengerusi EQC turut diadakan pada 15 November 2024 di Ibu Pejabat JAS.

ENVIRONMENTAL QUALITY COUNCIL (EQC)

The establishment of the Environmental Quality Council (EQC) is provided under Section 4, Environmental Quality Act (EQA) 1974 whose functions shall be generally to advise the Yang Berhormat Minister on matters pertaining to EQA 1974 and any matter referred to it by the YB Minister.

YB Nik Nazmi bin Nik Ahmad, Minister of Natural Resources and Environmental Sustainability (NRES) has appointed YBrs. Prof. Dr. Maketab bin Mohamed as the Chairman of the Environmental Quality Council (EQC) for the period of 30 August 2024 until 29 August 2027.

The Chairman of EQC had paid a courtesy visit to YB Minister NRES on 10 October 2024 at Kuala Lumpur Convention Centre (KLCC) that discussed the role of EQC in advising YB Minister on environmental matters.

A briefing session on the role and job scope of DOE in detail to the Chairman of EQC had been held on 15 November 2024 at the DOE Headquarters.



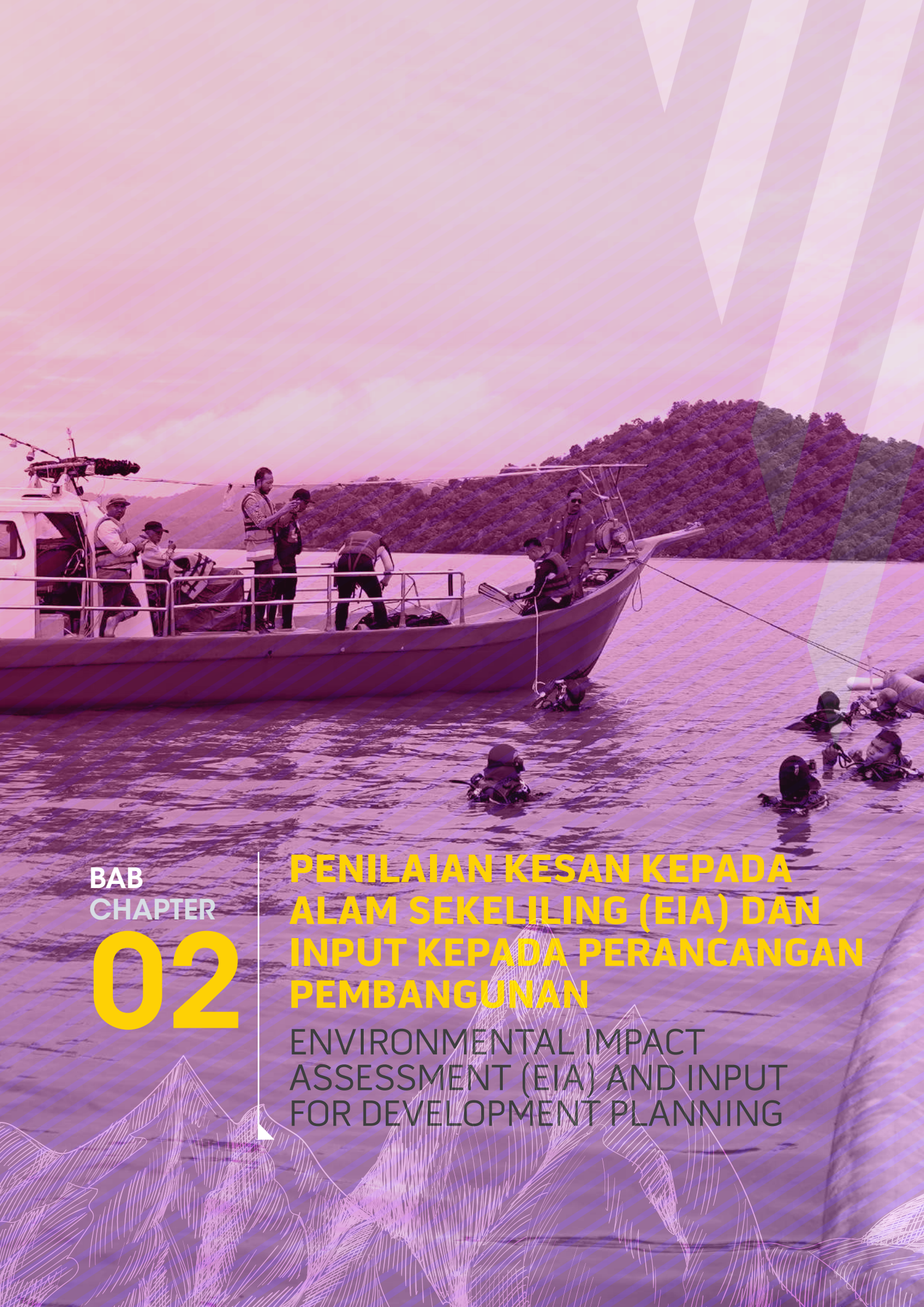
▲ Lantikan Pengerusi EQC oleh YB Menteri NRES pada 30 Ogos 2024 / Appointment of the Chairman of EQC by YB Minister NRES on 30 August 2024



▲ Sesi kunjungan hormat Pengerusi EQC kepada YB Menteri NRES di KLCC / Courtesy visit of the Chairman of EQC to YB Minister NRES at KLCC



◀ Taklimat peranan dan skop tugas JAS kepada Pengerusi EQC di Ibu Pejabat JAS / Briefing on the role and job scopes of DOE to the Chairman of EQC at DOE Headquarters



BAB
CHAPTER
02

PENILAIAN KESAN KEPADA ALAM SEKELILING (EIA) DAN INPUT KEPADA PERANCANGAN PEMBANGUNAN

ENVIRONMENTAL IMPACT ASSESSMENT (EIA) AND INPUT FOR DEVELOPMENT PLANNING

PENILAIAN KESAN KEPADA ALAM SEKELILING (EIA) DAN INPUT KEPADA PERANCANGAN PEMBANGUNAN
ENVIRONMENTAL IMPACT ASSESSMENT (EIA) AND INPUT FOR DEVELOPMENT PLANNING

EIA merupakan salah satu alat perancangan dalam pengurusan kelestarian alam sekitar yang mengenalpasti, meramal dan menilai impak terhadap alam sekitar serta memberikan maklumat terhadap kualiti alam sekitar semasa dan jangkaan kualiti yang akan diterima akibat sesuatu pembangunan. Selain itu, Laporan EIA turut mengenal pasti langkah mitigasi bagi meminimumkan kesan kepada alam sekeliling sebelum sesuatu projek dilaksanakan.

Penilaian Laporan EIA memberikan input yang memandu arah pihak berkuasa dalam membuat keputusan akhir terhadap projek pembangunan yang dicadangkan.

Untuk memastikan EIA menyumbang sepenuhnya dalam proses membuat keputusan bagi pengurusan alam sekitar yang lebih baik, prosedur dan pelaksanaan EIA yang dinamik perlu ditambah baik secara berkala seiring dengan pembangunan teknologi dan perkembangan ekonomi dunia.

Pelaksanaan EIA yang berkesan akan dapat memastikan pertimbangan alam sekitar diberikan penekanan dengan jelas dan digabungkan dalam proses membuat keputusan dan seterusnya menggalakkan pembangunan lestari demi kesejahteraan dan kemakmuran kepada kehidupan rakyat.

EIA is a planning tool in the management of environmental sustainability. It identifies, predicts, and evaluates impacts on the environment and provides information on the current and expected quality of the environment as a result of development activity. The EIA Report will also identify mitigation measures to offset potential adverse effects on the environment prior to project implementation.

EIA Report assessment provides input that guides the authority in making final decisions on a proposed development project.

To ensure that EIA fully contributes to the decision-making process for improved environmental management, dynamic EIA procedures and implementation need to be periodically improved in line with technological and world economic development.

An effective EIA implementation will ensure that environmental considerations are clearly emphasized and incorporated into the decision-making process, hence will promote sustainable development for the well-being and prosperity of the people.

LAPORAN EIA 2024

Sejumlah 499 Laporan EIA telah diterima dan dinilai oleh JAS pada tahun 2024 berbanding 543 laporan EIA pada tahun 2023 **(Rajah 2.1).** Laporan EIA tersebut adalah sebanyak 460 (92.2%) laporan bagi aktiviti yang tertakluk di bawah Jadual Pertama, Perintah Kualiti Alam Sekeliling (Aktiviti Yang Ditetapkan) (Penilaian Kesan Kepada Alam Sekeliling) 2015, manakala 39 (7.8%) laporan bagi aktiviti yang tertakluk di bawah Jadual Kedua perintah tersebut. Dari tahun 2014 sehingga kini sejumlah 4,189 Laporan EIA diterima oleh Jabatan.

EIA REPORTS 2024

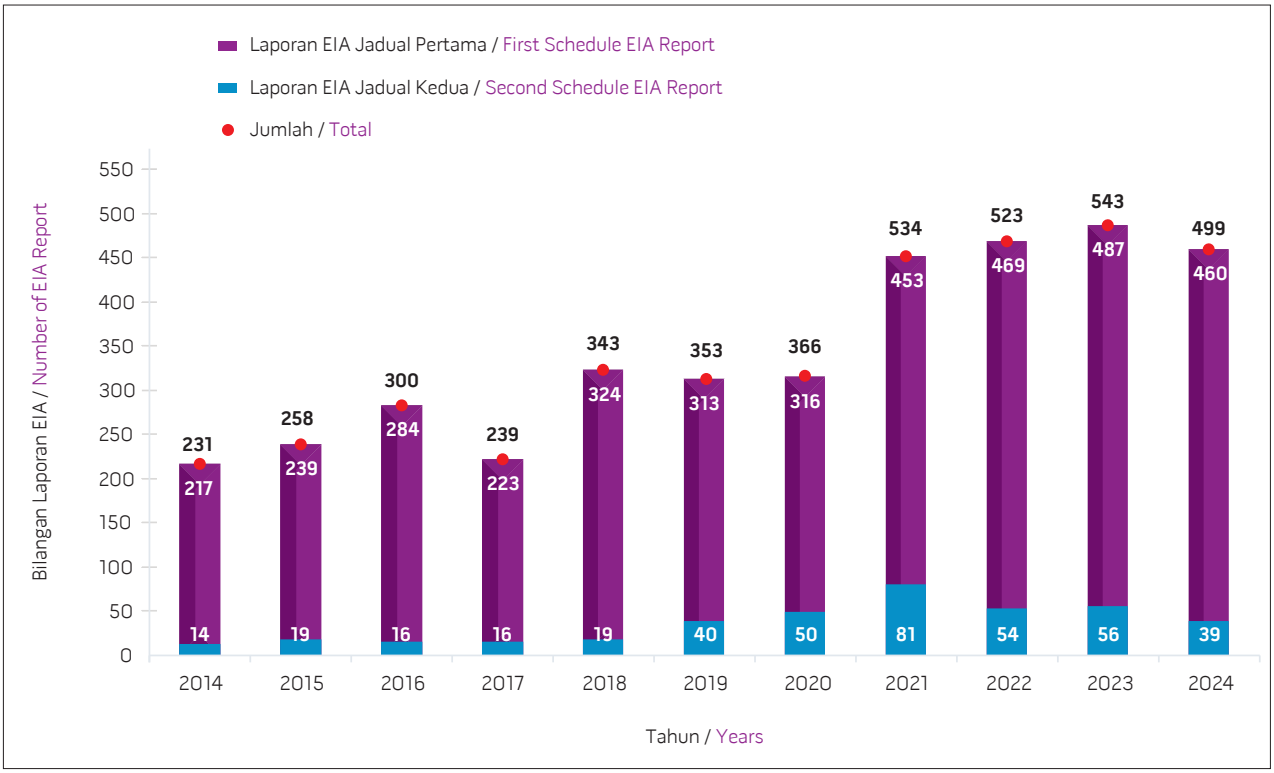
A total of 499 EIA Reports were received and reviewed by the DOE in 2024, compared to 543 in 2023 **(Figure 2.1)**. Of this figure, 460 (92.2%) were reports of activities under the First Schedule of the Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 2015, while 39 (7.8%) were reports of activities under the Second Schedule of the Order. Since 2014, the Department has received 4,189 EIA Reports.

Selangor menerima bilangan Laporan EIA tertinggi pada tahun 2024 iaitu sebanyak 75 (15.0%) laporan, diikuti dengan Pahang sebanyak 58 (11.6%) laporan dan Johor sebanyak 57 (11.4%) laporan **(Rajah 2.2). Rajah 2.3** menunjukkan status keputusan Laporan EIA dengan jumlah laporan yang diterima mengikut Negeri.

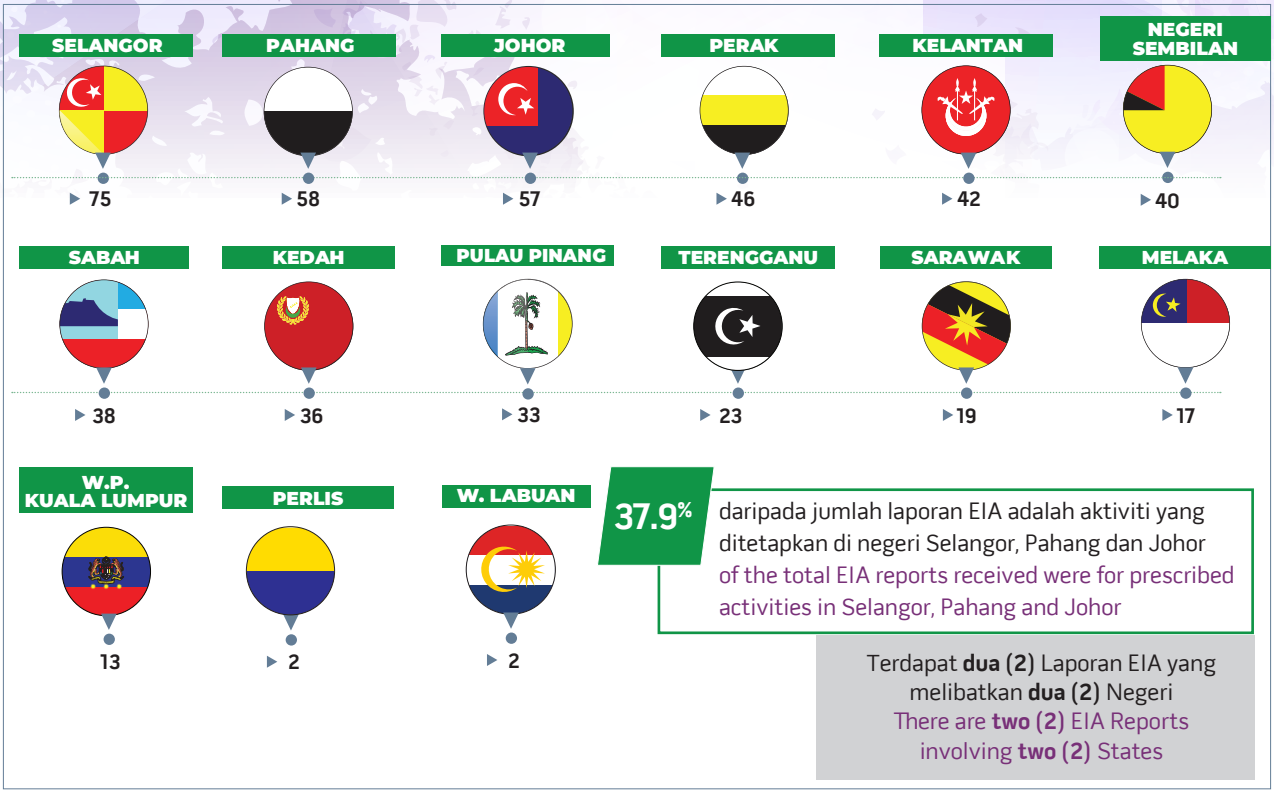
Rajah 2.4 menunjukkan Laporan EIA yang diterima berdasarkan aktiviti yang ditetapkan. Aktiviti pengolahan dan pelupusan buangan merupakan yang paling banyak diterima pada tahun 2024 iaitu sebanyak 206 (36.0%) laporan, diikuti aktiviti berkaitan perhutanan sebanyak 70 (12.2%) laporan dan aktiviti berkaitan pembangunan di kawasan cerun sebanyak 63 (11.0%) laporan.

Selangor received the highest number of EIA Reports in 2024, with 75 (15.0%) reports, followed by Pahang with 58 (11.6%) reports and Johor with 57 (11.4%) reports **(Figure 2.2)**. The total number of reports received according to the State is shown in **Figure 2.3**.

Figure 2.4 illustrates the EIA Reports received based on prescribed activities. Reports on waste treatment and disposal activities in 2024 were most received, with 206 (36.0%) reports, followed by forestry activities with 70 (12.2%) reports, and activities related to the



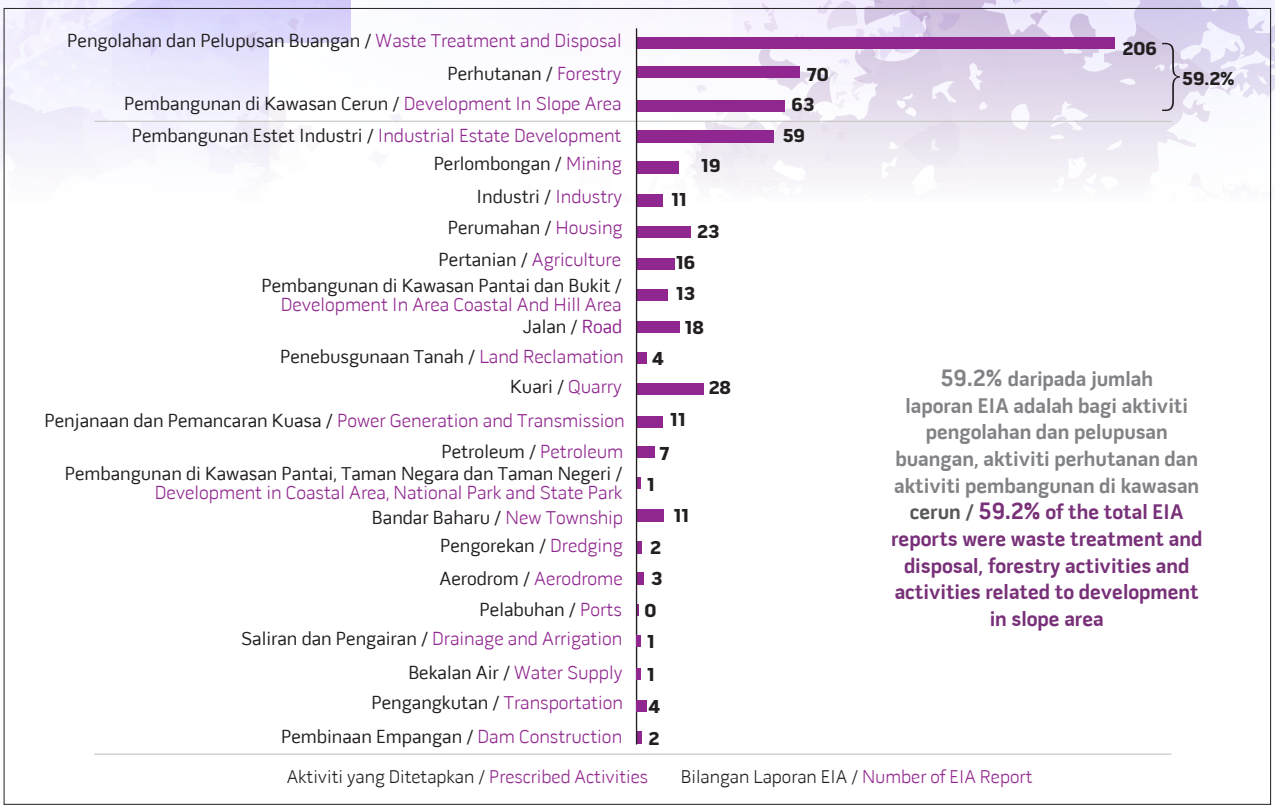
Rajah 2.1: Bilangan Laporan EIA yang Diterima mengikut Tahun bagi 10 Tahun Terkini
Figure 2.1: Number of EIA Reports Received by Years for the Last 10 Years



Rajah 2.2: Bilangan Laporan EIA yang Diterima mengikut Negeri, 2024
Figure 2.2: The Number of EIA Reports Received by State, 2024



Rajah 2.3: Penerimaan dan Keputusan Laporan EIA mengikut Negeri, 2024
Figure 2.3: EIA Reports Received, and Results of EIA Reports by State in 2024



Rajah 2.4: Bilangan Laporan EIA yang Diterima mengikut Aktiviti yang Ditetapkan, 2024
Figure 2.4: Number of EIA Reports Received by Prescribed Activities, 2024

PENGUATKUASAAN PROJEK EIA

Penguatkuasaan projek EIA dilaksanakan melalui kaedah pemeriksaan di lapangan dan juga pemeriksaan secara *desktop*. Keseluruhannya sebanyak 2,385 siasatan penguatkuasaan samada di darat atau badan air telah dijalankan pada tahun 2024 untuk mengenal pasti status fasa pembangunan dan pematuhan kepada syarat kelulusan EIA (**Rajah 2.5**). Daripada jumlah itu, sebanyak 83% didapati patuh kepada syarat-syarat kelulusan EIA manakala 17% pula adalah tidak patuh.

Daripada keseluruhan jumlah itu, sebanyak 903 pemeriksaan secara *desktop* telah dijalankan (**Rajah 2.6**). Melalui pemeriksaan *desktop,* didapati bahawa sebanyak 93% pemeriksaan patuh manakala 7% lagi tidak patuh. Pemeriksaan secara *desktop* bertujuan memastikan pemantauan pematuhan secara berterusan melalui sistem dalam talian yang diperkenalkan oleh JAS serta melalui laporan-laporan yang perlu dikemukakan kepada JAS secara berkala.

Daripada siasatan yang dijalankan, tindakan penguatkuasaan telah diambil merangkumi pengeluaran 366 notis arahan dan 6 kompaun. Sebanyak 20 kertas siasatan telah dibuka untuk didakwa di mahkamah kerana tidak mematuhi syarat-syarat kelulusan EIA.

EIA PROJECT ENFORCEMENT

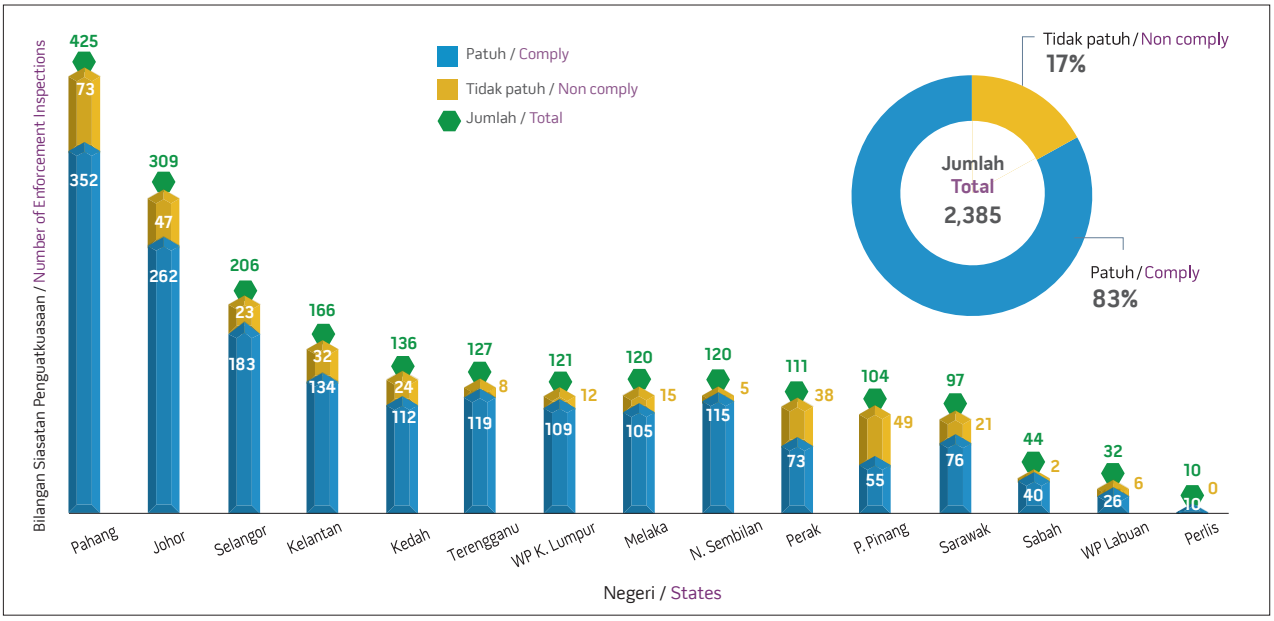
The enforcement of the EIA project is carried out through field enforcement methods and desktop enforcement. A total of 2,385 enforcement inspections (on land or water) were conducted in 2024 to identify the status of the development phase and compliance with EIA conditions requirements **(Figure 2.5)**. Of the total figure, 83% complied with EIA approval conditions, while 17% were non-compliant.

Out of the total amount, 903 desktop enforcements were carried out **(Figure 2.6)**. 93% were compliant, while 7% were non-compliant. Desktop enforcements are aimed at ensuring continuous monitoring for compliance through the online system introduced by DOE, as well as through reports submitted to DOE on a periodical basis.

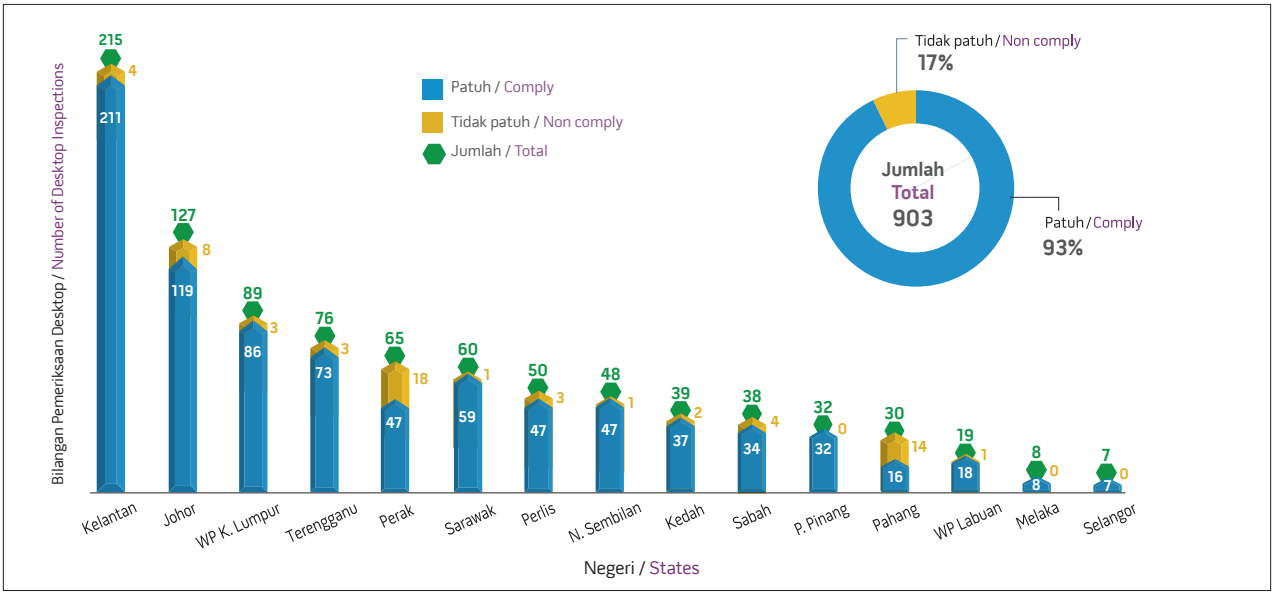
Based on the inspections conducted, enforcement actions involved the issuance of 366 notices and 6 compounds. A total of 20 investigation papers had been open to prosecution in court for non-compliance cases. In 2024, a total of 50 non-compliance cases were charged

Pada tahun 2024 juga sebanyak 50 pertuduhan telah didakwa di mahkamah dengan jumlah denda sebanyak RM 1,911,000.00 bagi kesalahan di bawah Seksyen 34A(6), Akta Kualiti Alam Sekeliling 1974. Selain itu, sebanyak 8 perintah larangan bagi aktiviti yang ditetapkan di bawah Seksyen 34AA, Akta Kualiti Alam Sekeliling 1974 juga telah dikeluarkan bagi kesalahan serius berkaitan pematuhan syarat kelulusan EIA (**Rajah 2.7**).

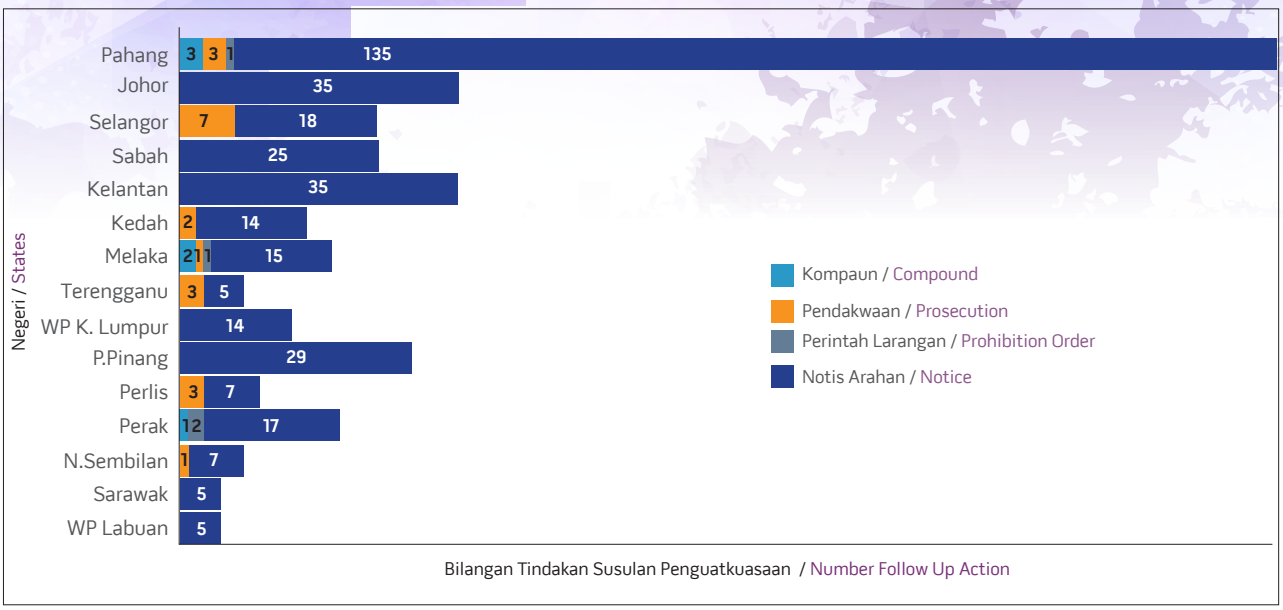
in court with penalties amounting to RM 1,911,000.00, pursuant to Section 34A (6), Environment Quality Act 1974. In addition, 8 prohibition orders for prescribed activities under Section 34AA, Environmental Quality Act 1974, were also issued for serious offences related to compliance with EIA approval conditions **(Figure 2.7)**.



Rajah 2.5: Siasatan Penguatkuasaan Projek EIA, 2024
Figure 2.5: EIA Project Enforcement Inspections in 2024



Rajah 2.6: Pemeriksaan *Dekstop* Projek EIA, 2024
Figure 2.6: EIA Project Desktop Inspections, 2024



Rajah 2.7: Tindakan Susulan Penguatkuasaan Projek EIA, 2024
Figure 2.7: Follow Up Action of EIA Project Enforcement, 2024



▲ Pengawasan Bunyi Bising di Kawasan Pembinaan
Noise Monitoring in Construction Areas



▲ Siasatan Projek Ladang Hutan
Investigation of the Forest Plantation Project



▲ Siasatan Projek Pertanian di Kawasan Cerun
Investigation of Agricultural Projects in Slope Areas



▲ Siasatan bersama Jabatan Perhutanan / Joint Investigation with Forestry Department



▲ Siasatan Projek Tambakan / Investigation of the Reclamation Project

PERINTAH LARANGAN ATAU PERINTAH BERHENTI KERJA

Peruntukan undang-undang di bawah Seksyen 34AA, Akta Kualiti Alam Sekeliling 1974 (Pindaan 2012) membolehkan Ketua Pengarah Kualiti Alam Sekeliling mengeluarkan perintah larangan atau perintah berhenti kerja kepada orang yang menjalankan aktiviti yang ditetapkan dalam tiga (3) keadaan iaitu:

i. Tanpa kelulusan Laporan EIA;
ii. Mencabuli apa-apa syarat yang dilampirkan di dalam kelulusan Laporan EIA; atau
iii. Pada pendapat Ketua Pengarah adalah dijalankan mengikut cara yang mungkin menyebabkan kerosakan alam sekeliling.

Perintah larangan atau perintah berhenti kerja itu boleh dikeluarkan bagi maksud menghalang aktiviti yang ditetapkan daripada berterusan seperti berikut:

i. Secara mutlak atau bersyarat;
ii. Bagi apa-apa tempoh sebagaimana yang ditentukan oleh Ketua Pengarah; atau
iii. Sehingga kehendak untuk meremedi sebagaimana yang diarahkan oleh Ketua Pengarah telah dipatuhi.

PROHIBITION ORDER OR STOP WORK ORDER

The legal provisions under Section 34AA, Environmental Quality Act 1974 (Amendment 2012) allow the Director General of Environmental Quality to issue a prohibition order or stop work order to the person who perform the prescribed activities in three (3) circumstances, which are:

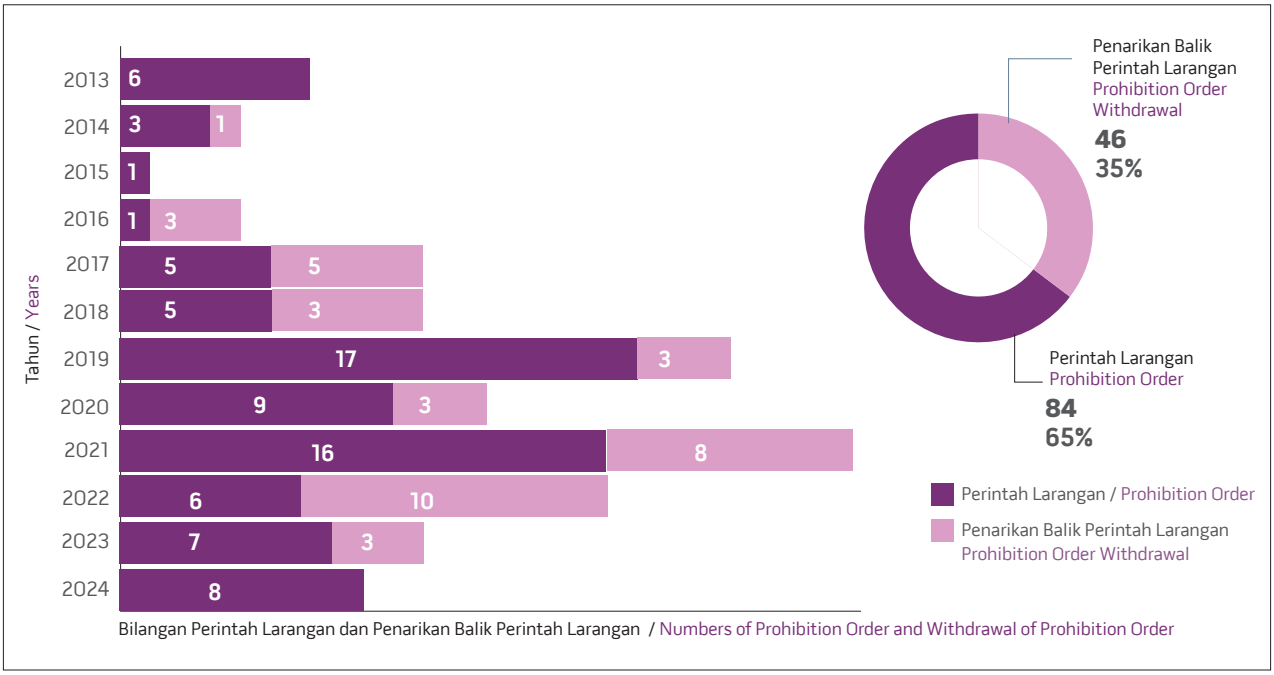
i. Without EIA Report approval;
ii. Violation of conditions attached to the EIA Report; or
iii. In the opinion of the Director General is performed in a way that could cause environmental damage.

A prohibition order or stop work order may be issued to prevent the prescribed activities from continuing as follows:

i. Absolutely or conditionally;
ii. For any period as determined by the Director-General; or
iii. Until remedial actions as directed by the Director General are obeyed.

Sejak 2013, JAS telah mengenakan sejumlah 84 tindakan perintah larangan terhadap projek EIA. Dalam tahun 2024, sejumlah 8 bilangan perintah larangan telah dikeluarkan melibatkan lima (5) aktiviti kitar semula sisa pepejal dan pengolahan buangan terjadual, satu (1) aktiviti perlombongan, satu (1) aktiviti estet perindustrian dan satu (1) aktiviti peranginan di tepi pantai. Pada tahun 2024 juga, sebanyak tujuh (7) perintah larangan yang dikenakan telah ditarik balik melibatkan satu (1) aktiviti estet perindustrian, dua (2) aktiviti perlombongan, satu (1) aktiviti penambakan, satu (1) aktiviti pengolahan sisa buangan terjadual dan dua (2) aktiviti kuari **(Rajah 2.8)**.

Since 2013, DOE has imposed 84 prohibition order actions against EIA project. In 2024, 8 prohibition orders were issued involving five (5) solid waste recycling and recovery schedule waste activities, one (1) mining activities, one (1) industrial estate activities, and one (1) development of beach resort activities. In addition, seven (7) prohibition order charges were withdrawn, involving one (1) industrial estate activities, two (2) mining activities, one (1) reclamation activities, one (1) recovery scheduled waste and two (2) quarries activities (**Figure 2.8**).



Rajah 2.8: Statistik Perintah Larangan dan Penarikan Balik Perintah Larangan
Figure 2.8: Statistic of Prohibition Order and Withdrawal of Prohibition Order

PELAN PENGURUSAN ALAM SEKITAR (EMP)

EMP merupakan komponen penting dalam pelaksanaan projek EIA kerana ia merupakan salah satu elemen untuk memastikan pematuhan terhadap syarat-syarat kelulusan Laporan EIA dan seterusnya pematuhan terhadap perundangan yang berkaitan dengan alam sekitar.

EMP yang disediakan oleh Penggerak Projek akan menggariskan strategi dan tindakan yang perlu dilaksanakan berdasarkan Amalan Pengurusan Terbaik untuk melindungi alam sekitar. Sehubungan itu, EMP akan memastikan segala cadangan di dalam Laporan EIA berjaya dilaksanakan dalam fasa rekabentuk akhir, pembinaan dan operasi sesuatu projek EIA.

EMP adalah dokumen yang perlu disemak dan dikemaskini berdasarkan pelbagai perubahan yang berlaku. Faktor perubahan ini berkemungkinan disebabkan oleh perubahan pada butiran projek, kawasan persekitaran dan penambahan langkah kawalan untuk mematuhi piawaian yang ditetapkan di dalam kelulusan Laporan EIA.

Sepanjang tahun 2024, sebanyak 573 EMP telah diterima dan diproses oleh JAS **(Rajah 2.9)**. Daripada jumlah itu, sebanyak 514 (90%) adalah daripada aktiviti yang tertakluk di bawah Jadual Pertama, Perintah Kualiti Alam Sekeliling (Aktiviti Yang Ditetapkan) (Penilaian Kesan Kepada Alam Sekeliling) 2015, manakala 59 (10%) bagi aktiviti yang tertakluk di bawah Jadual Kedua perintah tersebut.

Selangor menerima bilangan EMP tertinggi pada tahun 2024 iaitu sebanyak 96 (17%), diikuti dengan Perak sebanyak 75 (13%) dan Pulau Pinang sebanyak 62 (11%).

ENVIRONMENTAL MANAGEMENT PLAN (EMP)

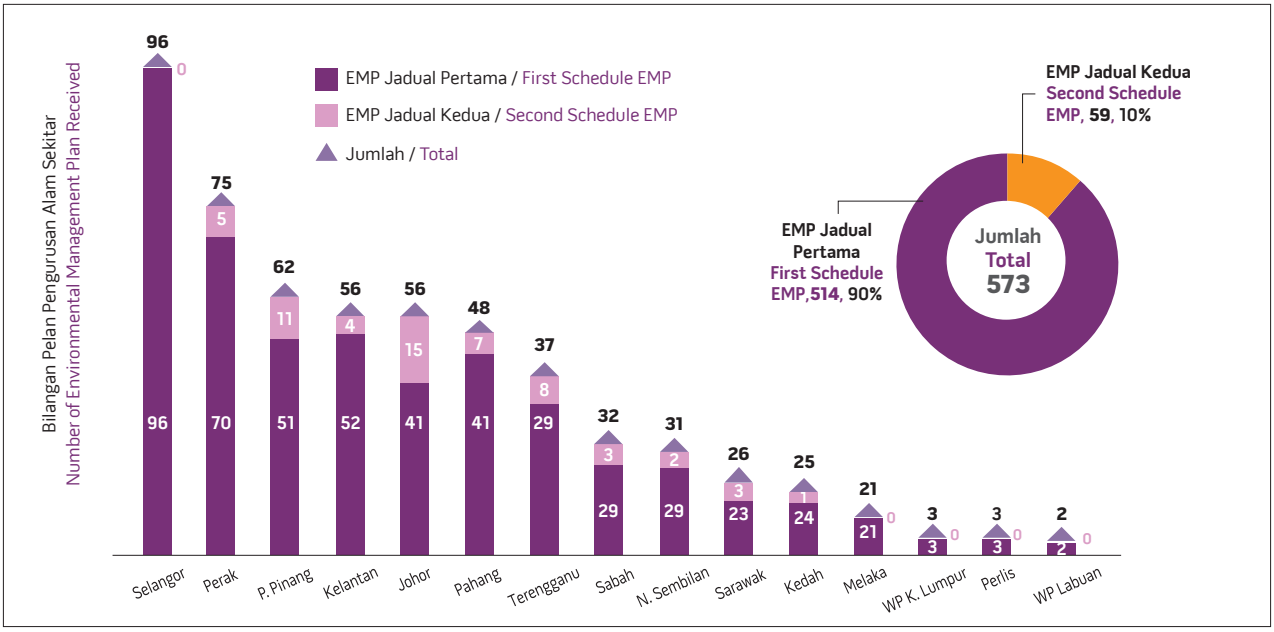
The EMP is an important element in the implementation of EIA projects as it ensures compliance with the approval conditions of the EIA report and compliance with legislation related to the environment.

The EMP prepared by Project Proponents will outline strategies and actions that need to be implemented based on Best Management Practices to protect the environment. Accordingly, the EMP will ensure the successful implementation of all recommendations in the EIA Report, especially in the final design stage, construction, and operation of an EIA project.

The EMP is a document that needs to be reviewed and updated based on changes that take place. The change factor is likely caused by changes of project details, surrounding areas, and the addition of control measures to ensure compliance with the standards set in the approval of the EIA Report.

In 2024, a total of 573 EMPs were received and processed by DOE **(Figure 2.9)**. 514 (90%) activities were under the First Schedule of the Environment Quality (Prescribed Activities) (Environmental Impact Assessment) Order 2015, while 59 (10%) were under the Second Schedule of the Order.

Selangor recorded the highest number of EMP in 2024, with 96 (17%), followed by Perak with 75 (13%), and Pulau Pinang with 62 (11%).



Rajah 2.9: Bilangan Pelan Pengurusan Alam Sekitar yang Diterima Mengikut Negeri, 2024
Figure 2.9: Number of Environmental Management Plan Received by States, 2024

SKIM PENDAFTARAN JURURUNDING EIA

Skim Pendaftaran Jururunding EIA telah mula diperkenalkan pada 1 Jun 2007. Pendaftaran Jururunding EIA ini adalah satu keperluan undang-undang di bawah Seksyen 34A, Akta Kualiti Alam Sekeliling, 1974 (Pindaan 2012) yang mewajibkan semua jururunding EIA atau orang yang layak berdaftar dengan JAS untuk menjalankan kajian EIA dan mengemukakan Laporan EIA kepada JAS.

Pendaftaran adalah terbuka kepada semua individu dan mempunyai lima (5) kategori pendaftaran iaitu EIA Consultant (C), Subject Consultant (CS), Subject Specialist (SS), Assistant Consultant (AC) dan Assistant Consultant & Subject Specialist (ACS).

Sepanjang tahun 2024, sejumlah 194 permohonan baharu telah diterima dan sebanyak 180 permohonan telah diluluskan pendaftaran bagi pelbagai kategori. Sejumlah 141 permohonan pembaharuan telah diterima sepanjang tahun 2024 dan 131 permohonan telah diluluskan.

Sehingga 31 Disember 2024, sebanyak 764 individu telah berdaftar di bawah Skim Pendaftaran Jururunding EIA melalui sistem Malaysian Certified Environmental Practitioner (myCEP), di mana 164 orang adalah EIA Consultant (C), 91 orang Subject Consultant (CS), 250 orang adalah Subject Specialist (SS), 248 orang adalah Assistant Consultant (AC) dan 11 orang adalah Assistant Consultant & Subject Specialist (ACS). **Jadual 2.1** menunjukkan pecahan bilangan jururunding EIA dan peratusan mengikut kategori.

EIA CONSULTANT REGISTRATION SCHEME

The EIA Consultant Registration Scheme was first introduced on 1 June 2007. The registration of EIA consultant is a legal requirement under Section 34A, Environmental Quality Act, 1974 (Amendment 2012), which requires all EIA consultants or qualified persons to register with DOE before conducting EIA studies and submit the EIA Report to DOE.

Registration is open for individuals and divided into five (5) categories, namely, EIA Consultant (C), Subject Consultant (CS), Subject Specialist (SS), Assistant Consultant (AC), and Assistant Consultant & Subject Specialists (ACS).

During 2024, a total of 194 new applications were received and a total of 180 applications were approved for various categories. A total of 141 renewal applications were received throughout the year 2024 and 131 applications were approved.

As of 31 December 2024, 764 individuals were registered under the EIA Consultant Registration Scheme through the Malaysian Certified Environmental Practitioner (myCEP) system, of which 164 were EIA Consultants (C), 91 were Subject Consultants (CS), 250 were Subject Specialists (SS), 248 were Assistant Consultants (AC), and 11 were Assistant Consultants & Subject Specialists (ACS). **Table 2.1** shows the breakdown of EIA consultants and percentage by category.

Jadual 2.1: Bilangan Jururunding EIA
Table 2.1: Number of EIA Consultants

BIL. / NO.	KATEGORI / CATEGORY	BILANGAN JURURUNDING NUMBERS OF CONSULTANT	PERATUSAN PERCENTAGE
1.	EIA Consultant (C)	164	21.5
2.	Subject Consultant (CS)	91	11.9
3.	Subject Specialist (SS)	250	32.7
4.	Assistant Consultant (AC)	248	32.5
5.	Assistant Consultant & Subject Specialist (ACS)	11	1.4
JUMLAH / TOTAL		**764**	**100**

SKIM PENDAFTARAN JURUAUDIT ALAM SEKITAR

Skim Pendaftaran Juruaudit Alam Sekitar telah mula diperkenalkan pada Jun 2009. Mulai 1 Disember 2009, JAS hanya menerima laporan-laporan audit pematuhan yang disediakan oleh Juruaudit Alam Sekitar yang berdaftar dengan JAS sahaja.

Sepanjang tahun 2024, sebanyak 15 permohonan baharu telah diterima dan 14 daripadanya telah didaftarkan sebagai Juruaudit Alam Sekitar. Manakala bagi permohonan pembaharuan, pihak Jabatan telah menerima 22 permohonan di mana 19 permohonan telah diluluskan **(Jadual 2.2)**. Sehingga 31 Disember 2024, sebanyak 125 orang individu telah didaftarkan sebagai Juruaudit Alam Sekitar.

Skim pendaftaran ini diadakan bagi memenuhi keperluan di bawah Seksyen 33A, Akta Kualiti Alam Sekeliling 1974 yang menyatakan hanya orang yang layak sahaja dibenarkan menjalankan audit alam sekeliling. Pelaksanaan audit dan pelaporan audit alam sekeliling harus mengikut prosedur dan garis panduan yang telah ditetapkan oleh JAS.

Pelaksanaan audit ini merupakan salah satu kaedah pematuhan kendiri yang dilaksanakan bagi memastikan pematuhan yang berterusan terhadap Akta Kualiti Alam Sekeliling 1974.

Pada tahun 2024, sebanyak 752 audit alam sekeliling di bawah Seksyen 33A, Akta Kualiti Alam Sekeliling 1974 telah dijalankan ke atas projek pembangunan yang tertakluk kepada Perintah Kualiti Alam Sekeliling (Aktiviti Yang Ditetapkan) (Penilaian Kesan Kepada Alam Sekeliling) 2015 **(Rajah 2.10)**.

ENVIRONMENTAL AUDIT REGISTRATION SCHEME

The Environmental Audit Registration Scheme was first introduced in June 2009. Starting from 1 December 2009, DOE only accepts compliance audit reports prepared by Environmental Auditors registered with DOE.

In 2024, the Department received 15 new applications, of which 14 were approved as Environmental Auditors. As for renewal applications, the Department received 22 applications, of which 19 applications were approved **(Table 2.2)**. As of 31 December 2024, 125 individuals were registered as Environmental Auditors.

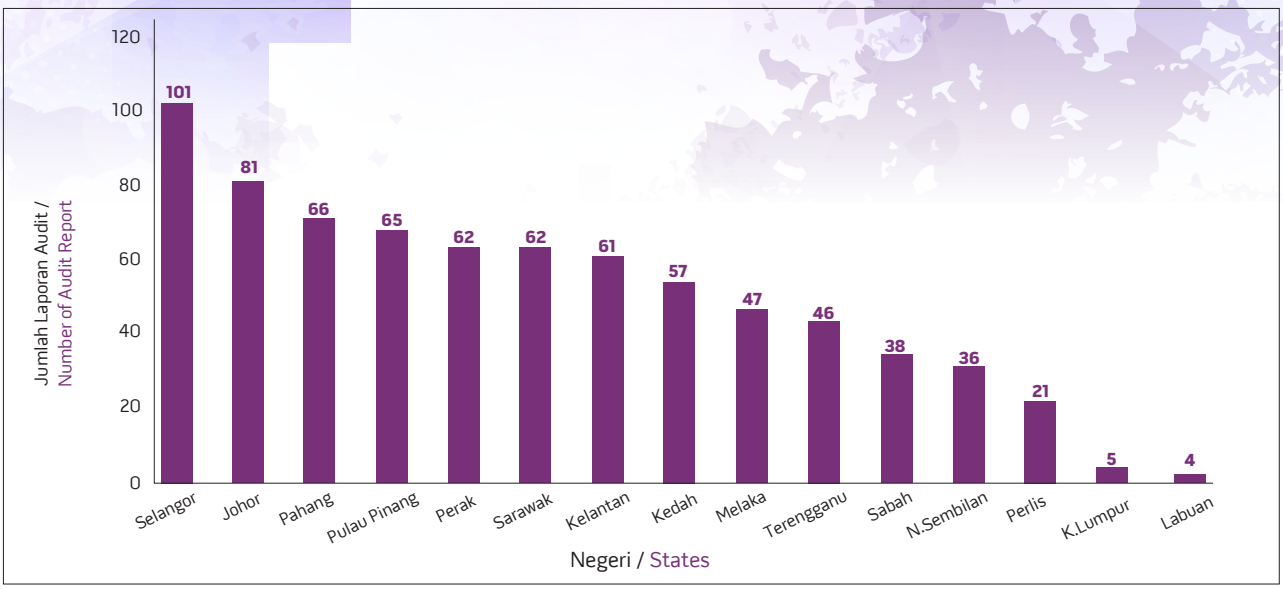
The registration scheme is established to fullfill the requirements under Section 33A Environmental Quality Act 1974, which states that only qualified persons are allowed to conduct environmental audits. Audits and its reporting must be conducted and prepared in accordance with the procedures and guidelines established by the department.

Auditing is one of the self-regulatory methods implemented to ensure continuous compliance with the Environmental Quality Act 1974.

In 2024, a total of 752 environmental audits were conducted under Section 33A, Environment Quality Act 1974, for development projects prescribed under the Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 2015 **(Figure 2.10).**

Jadual 2.2: Jumlah Permohonan Juruaudit Alam Sekitar yang Diluluskan, 2024
Table 2.2: Number of Approved Environmental Auditor Applications, 2024

JENIS PERMOHONAN TYPES OF APPLICANTS	JUMLAH PERMOHONAN NO. OF APPLICANTS	JUMLAH LULUS NO. OF APPLICATIONS APPROVED	PERATUSAN LULUS PERCENTAGE APPROVED
Baharu / New	15	14	93.3 %
Pembaharuan / Renew	22	19	86.4 %



Rajah 2.10: Bilangan Audit Alam Sekeliling bagi Projek EIA mengikut Negeri, 2024
Figure 2.10: Number of Environmental Audits for EIA Projects by State, 2024

PERMOHONAN KELULUSAN MENJALANKAN AKTIVITI EKPLORASI DI DALAM KAWASAN ZON EKONOMI EKSKLUSIF (ZEE)

Eksplorasi minyak dan gas merupakan proses awal dalam pembangunan medan pengeluaran minyak dan gas bertujuan untuk mengenal pasti lokasi sumber minyak dan gas. Aktiviti eksplorasi minyak dan gas ini tidak tertakluk kepada Perintah Kualiti Alam Sekeliling (Aktiviti yang ditetapkan) (Penilaian Kesan Kepada Alam Sekeliling) 2015.

Kebanyakan lokasi medan eksplorasi minyak dan gas luar pantai berada di dalam kawasan ZEE. Kelulusan bagi projek-projek di dalam kawasan ZEE ini adalah di bawah bidang kuasa Jawatankuasa Menimbang dan Meluluskan Permohonan di bawah Seksyen 21(1) dan Seksyen 22 Akta Zon Ekonomi Eksklusif 1984 (Akta 311) (JKZEE) yang diselaraskan oleh Kementerian Perdagangan Dalam Negeri dan Kos Sara Hidup (KPDN) sebagai urusetia.

Keahlian Jawatankuasa ini dianggotai oleh pelbagai agensi di peringkat persekutuan termasuk JAS. JKZEE berperanan menilai dan meluluskan sesuatu permohonan untuk kerja-kerja membina, mengendali atau menggunakan mana-mana pulau, pemasangan atau struktur buatan, pemasangan kabel serta talian paip di ZEE.

Selain daripada menilai laporan EIA bagi aktiviti pembangunan medan minyak dan gas di dalam kawasan ZEE, JAS juga turut bertanggungjawab memberikan

APPLICATIONS TO EXPLORATION ACTIVITIES IN THE EXCLUSIVE ECONOMIC ZONE (EEZ)

The exploration of oil and gas is the initial process of identifying the resource location for oil and gas for the development of an oil and gas production field. This oil and gas exploration activity is not subject to the Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 2015.

Most offshore oil and gas exploration fields are located within the EEZ. The approval of projects within the EEZ area is under the purview of the Consideration Committee. Approval of application is subject to Section 21 (1) and Section 22 of the Exclusive Economic Zone Act 1984 (Act 311) coordinated by the Ministry of Domestic Trade and Cost of Living (KPDN), which acts as the secretariat.

The members of the committee are from various federal agencies, including DOE. The committee evaluates and approves applications for construction work, operation or use of any island, artificial installations or structures, cable, and pipeline installation in the EEZ.

Apart from evaluating the EIA report for oil and gas field development activities within the EEZ area, DOE is also responsible to provide input for the committee for

input kepada JKZEE bagi permohonan kelulusan projek yang tidak tertakluk kepada Perintah Kualiti Alam Sekeliling (Aktiviti yang ditetapkan) (Penilaian Kesan Kepada Alam Sekeliling) 2015 yang diselaraskan oleh Majlis Keselamatan Negara (MKN) sebagai urusetia. Pada tahun 2024, JAS telah menerima sebanyak 28 permohonan pembangunan di dalam kawasan ZEE dan telah dinilai oleh JAS Negeri yang berkaitan iaitu 1 di Terengganu, 21 di Sarawak dan 4 di Sabah.

INPUT ALAM SEKITAR KEPADA PERANCANGAN PEMBANGUNAN

Pada tahun 2024, sejumlah 10,883 input alam sekitar telah diberikan oleh Pejabat JAS Negeri kepada penggerak projek, Kerajaan Negeri, Pihak Berkuasa Tempatan, Pejabat Tanah serta serta agensi-agensi lain yang berkaitan **(Rajah 2.11)**.

Input teknikal yang diberikan ini adalah penting bagi memastikan keperluan perundangan alam sekitar dipatuhi dan aspek alam sekitar diberikan pertimbangan yang sewajarnya di dalam proses membuat keputusan di dalam sesuatu perancangan pembangunan.

Di pihak Ibu Pejabat JAS, input alam sekitar turut diberikan kepada agensi seperti Kementerian Perumahan dan Kerajaan Tempatan (KPKT), *Malaysian Investment Development Authority* (MIDA), Kementerian Perdagangan Dalam Negeri dan Kos Sara Hidup (KPDN) dan Kementerian Sumber Asli dan Kelestarian Alam (NRES) mengenai penyelarasan perancangan pembangunan, pelaburan industri dari dalam dan luar negara, pelan tempatan, kajian rancangan fizikal negara, kajian kawasan sensitif alam sekitar, pembukaan medan minyak, aktiviti di kawasan tanah tinggi dan sebagainya.

Inisiatif penubuhan Unit Pusat Setempat (OSC) di semua PBT di Semenanjung Malaysia telah mula diperkenalkan sejak tahun 2007 dengan objektif untuk menyelaras pelbagai permohonan pembangunan melalui satu sistem dan prosedur yang telus dan seragam.

Fungsi dan peranan OSC telah diperkasakan dengan mewujudkan sistem OSC secara atas talian. OSC 3.0 telah diperkenalkan pada 1 Jun 2014 bagi mengatasi masalah kelewatan kelulusan pemajuan.

Sistem OSC 3.0 *plus online* telah dinaik taraf kepada platform atas talian untuk menerima dan memproses permohonan pemajuan termasuk permohonan yang berkaitan dengan Kebenaran Merancang oleh setiap Pihak Berkuasa Tempatan (PBT).

approval of projects not subject to the Environmental Quality (Prescribed Activities) (Environmental Impact Asessment) Order 2015 coordinated by the National Security Council (MKN) (Secretariat) who acts as the secretariat. In 2024, DOE received 28 applications for development within the EEZ area evaluated by the relevant State DOE - 1 in Terengganu, 21 in Sarawak, and 4 in Sabah.

ENVIRONMENTAL INPUT FOR DEVELOPMENT PLANNING

In 2024, a total of 10,883 environmental inputs were provided to project proponents, State Government, Local Authorities, and Land Offices as well as other related agencies by the State DOE Office **(Figure 2.11)**.

Technical input provided were relevant to ensure that environmental legal requirements were complied with and appropriate considerations were given to environmental aspects in the decision-making process of a development plan.

The DOE Headquarters also provided environmental inputs to agencies such as the Ministry of Housing and Local Government (KPKT), Malaysian Investment Development Authority (MIDA), Ministry of Domestic Trade and Cost of Living (KPDN), and Ministry of Natural Resources and Environmental Sustainability (NRES) on the coordination of development planning, local and foreign industrial investment, local plans, national physical plan study, studies on environmentally sensitive areas, development of oil and gas fields, activities in highlands, and others.

The initiative to establish a One Stop Centre unit (OSC) in all local authorities in Peninsular Malaysia began in 2007 to coordinate various development applications using one system and procedure that is transparent and uniform.

The function and role of OSC were enhanced with the establishment of the OCS online system. OCS 3.0 was introduced on 1 June 2014 to overcome the delay in the approval process.

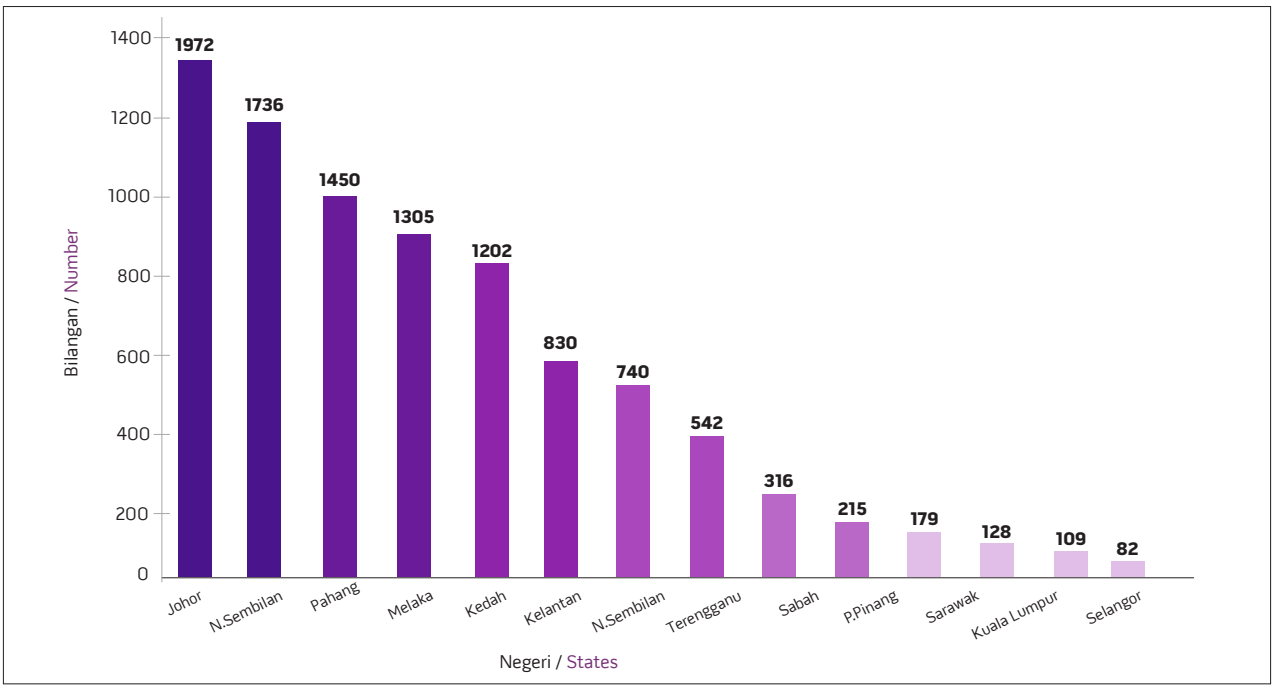
The OSC 3.0 plus online system has been upgraded to an online platform to allow it to receive and process development applications, including those related to Planning Permission by each Local Authority (PBT).

JAS Negeri adalah antara Agensi Teknikal Luar (ATL) yang bertanggungjawab untuk mengemas kini permohonan yang telah diterima bagi membuat pertimbangan keputusan permohonan pemajuan.

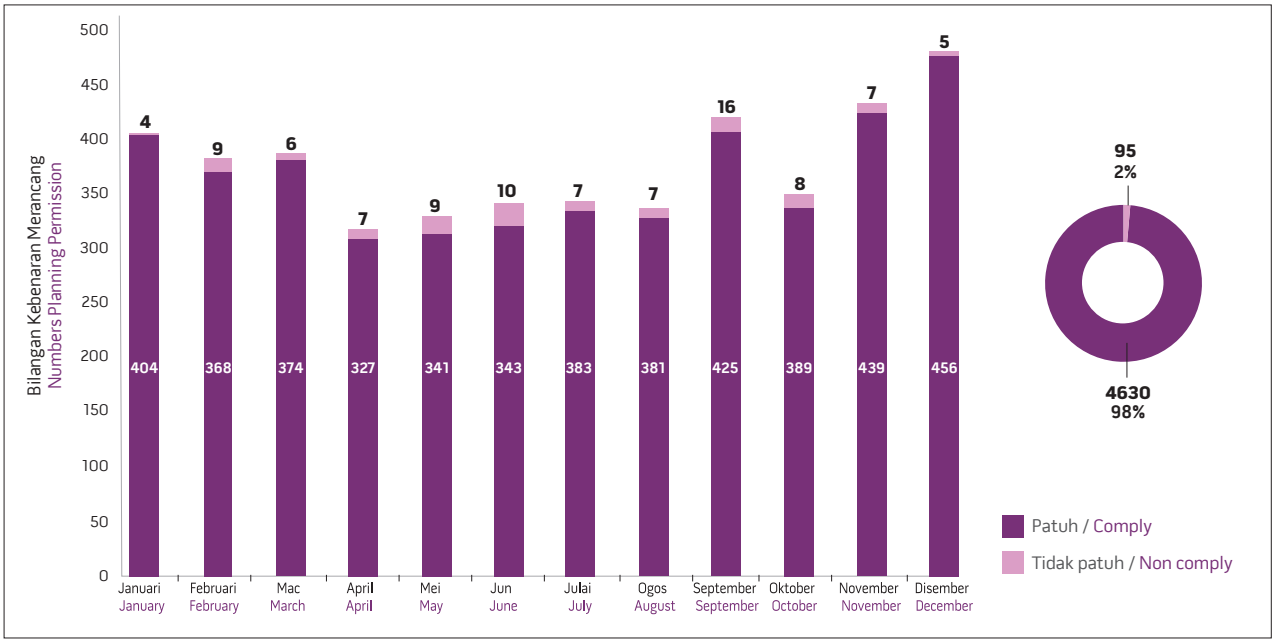
Pada tahun 2024, JAS telah menerima sebanyak 4,725 permohonan dalam sistem OSC 3.0 *plus online*. **Rajah 2.12** menunjukkan pematuhan 98.0% ulasan teknikal JAS kepada sistem OSC 3.0 *plus online*.

The State DOE is one of the External Technical Agencies (ETA) responsible for updating applications received for consideration.

In 2024, DOE received 4,725 applications in the OSC 3.0 plus online system. **Figure 2.12** shows a 98.0% compliance of DOE technical comments to the OSC 3.0 plus online system.



Rajah 2.11: Bilangan Input Alam Sekitar kepada Perancangan Pembangunan mengikut Negeri, 2024
Figure 2.11: Number of Environmental Input for Development Planning by States, 2024



Rajah 2.12: Statistik Pematuhan OSC 3.0 Plus Online - Kebenaran Merancang mengikut Bulan, 2024
Figure 2.12: Statistic of OSC 3.0 Plus Compliance - Planning Permission by Month, 2024

PROJEK RANCANGAN MALAYSIA KEDUA BELAS (RMKe-12)

Di bawah RMKe-12, JAS sedang melaksanakan projek Pemantapan Pelaksanaan Penilaian Alam Sekitar Di Malaysia. Bagi tahun 2024, terdapat terdapat dua (2) kajian di bawah projek ini yang telah diluluskan iaitu:

i. Kajian Bagi Penggubalan Peraturan-Peraturan Kualiti Alam Sekeliling (Aktiviti Yang Ditetapkan) (Penilaian Kesan Kepada Alam Sekeliling) (PPKAS EIA) 20XX; dan

ii. Kajian Bagi Pengenaan Fi Berkaitan Dengan Pemprosesan Laporan Penilaian Kesan Kepada Alam Sekeliling (Environmental Impact Assessment, EIA).

Selain daripada itu, Jabatan Alam Sekitar juga sedang menyemak Cadangan Pindaan Perintah (Aktiviti Yang Ditetapkan) (Penilaian Kesan Kepada Alam Sekeliling) 20XX.

Cadangan Pindaan Perintah (Aktiviti Yang Ditetapkan) (Penilaian Kesan Kepada Alam Sekeliling) 20XX

Perundangan berkaitan EIA ini telah dilaksanakan lebih dari 30 tahun di Malaysia. Beberapa pindaan terhadap seksyen berkaitan EIA telah dilaksanakan bagi memantapkan pelaksanaan EIA di Malaysia. Selain itu, pindaan terhadap aktiviti-aktiviti yang memerlukan kajian EIA juga telah dilaksanakan pada tahun 2015 oleh Jabatan Alam Sekitar dengan menetapkan 2 Jadual bagi aktiviti yang perlu menjalankan EIA iaitu sebanyak 21 jenis aktiviti yang disenaraikan dalam Jadual Pertama dan 17 jenis aktiviti di dalam Jadual Kedua, Perintah Kualiti Alam Sekeliling (Aktiviti Yang Ditetapkan)(Penilaian Kesan Kepada Alam Sekeliling) 2015.

Dalam menambah baik pelaksanaan EIA di Malaysia, JAS berdasarkan input dan maklum balas pelanggan termasuk agensi kerajaan, pihak penggerak projek, Badan Bukan Kerajaan (NGO) dan pihak-pihak berkepentingan lain telah melaksanakan Sesi Libat Urus (SLU) dan Bengkel Perintah Kualiti Alam Sekeliling (Aktiviti Yang Ditetapkan) (Penilaian Kesan Kepada Alam Sekeliling) 2015 dengan mengambil kira situasi semasa dan isu alam sekitar yang semakin kompleks.

TWELFTH MALAYSIAN PLAN PROJECT (12MP)

Under the Twelfth Malaysian Plan, the DOE is implementing Strengthening Implementation of Environmental Assessment Project in Malaysia. For 2023, there are two (2) studies under this project that have been approved which are:

i. Study on Drafting of Environmental Quality Regulations (Prescribed Activities) (Environmental Impact Assessment) (EQ EIA) 20XX; and

ii. Study on the Imposition of Fees Related to the Processing of Environmental Impact Assessment (EIA) Reports.

Apart from that, the Department of Environment is also reviewing the Proposed Amendment to the (Prescribed Activities) (Environmental Impact Assessment) Order 20XX.

Proposed Amendments to The Environmental Quality Order (Prescribed Activities) (Environmental Impact Assessment) 20XX

The legislation related to EIA (Environmental Impact Assessment) has been implemented for over 30 years in Malaysia. Several amendments to the sections related to EIA have been carried out to strengthen the implementation of EIA in Malaysia. In addition, amendments to the activities that require EIA study were also implemented in 2015 by the Department of Environment, which established two schedules for activities that must undergo an EIA. These include 21 types of activities listed in Schedule One and 17 types of activities in Schedule Two of the Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 2015.

In improving the implementation of EIA in Malaysia, DOE based on input and feedback from customers including government agencies, project proponents, Non-Governmental Organizations (NGOs), and other stakeholders, had conducted Stakeholder Engagement Sessions (SLU) and workshops on the proposed amendment Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 2015 by considering the current situation and increasingly complex environmental issues.

Objektif Pindaan Perintah Kualiti Alam Sekeliling (Aktiviti Yang Ditetapkan) (Penilaian Kesan Kepada Alam Sekeliling) 20XX adalah:

i. Meningkatkan tahap pematuhan kendiri dalam perlaksanaan projek EIA sehingga 100% pematuhan menjelang tahun 2030;

ii. Menyelaras semula aktiviti-aktiviti yang ditetapkan dibawah Perintah EIA mengikut bidang kuasa Jabatan Alam Sekitar bagi meningkatkan keberkesanan penguatkuasaan undang-undang EIA sehingga 100% menjelang 2030; dan

iii. Menambah baik tafsiran dan istilah bagi meningkat kefahaman pemakaian dan pelaksanaan undang-undang EIA sehingga 100% dalam kalangan penggerak projek menjelang tahun 2030.

Pada tahun 2024, sebanyak lima belas (15) Sesi Libat Urus Bersama Agensi dan Industri Bagi Cadangan Pindaan Perintah Kualiti Alam Sekeliling (Aktiviti Yang Ditetapkan) (Penilaian Kesan Kepada Alam Sekeliling) 20XX telah diadakan mengikut aktiviti seperti di **Jadual 2.3.**

The objective of the amendment to the Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 20XX are:

i. To improve the level of self-compliance in the implementation of EIA projects to achieve 100% compliance by 2030;

ii. To re-coordinate the prescribed activities under the EIA Order according to the jurisdiction of the Department of Environment to enhance the effectiveness of EIA law enforcement to 100% by 2030; and

iii. To improve the interpretation and terminology to enhance understanding of the application and implementation of EIA laws to 100% among project proponents by 2030.

In 2024, a total of fifteen (15) Stakeholder Engagement Workshop Sessions with Agencies and Industry for the Proposed Amendments to the Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 20XX were held according to the activities listed in **Table 2.3**.

Jadual 2.3 : Sesi Libat Urus bersama Agensi dan Industri bagi Cadangan Pindaan Perintah Kualiti Alam Sekeliling(Aktiviti Yang Ditetapkan) (Penilaian Kesan Kepada Alam Sekeliling) 20XX, 2024
Table 2.3: Engagement Session with Agencies and Industry for Proposed Amendments to the Environmental Quality Order (Prescribed Activities) (Environmental Impact Assessment) 20XX, 2024

BIL. NO.	TARIKH DATE	SESI LIBAT URUS BAGI CADANGAN PINDAAN PERINTAH KUALITI ALAM SEKELILING (AKTIVITI YANG DITETAPKAN) (PENILAIAN KESAN KEPADA ALAM SEKELILING) 20XX, 2024 / ENGAGEMENT SESSION WITH AGENCIES AND INDUSTRY FOR PROPOSED AMENDMENTS TO THE ENVIRONMENTAL QUALITY ORDER (PRESCRIBED ACTIVITIES) (ENVIRONMENTAL IMPACT ASSESSMENT) 20XX, 2024
1	29 April 2024 29 April 2024	Libat Urus Bagi Aktiviti 5 (Perhutanan), Jadual Pertama dan Kedua. Engagement for Activity 5 (Forestry), First and Second Schedule.
2	15 Mei 2024 15 May 2024	Libat Urus Cadangan Bagi Aktiviti 5 (Perhutanan) : Ladang Hutan. Engagement for Activity 5 (Forestry) : Forest Plantation.
3	12 Jun 2024 12 June 2024	Libat Urus Bagi Aktiviti 16 (Pengangkutan), Jadual Kedua. Engagement for Activity 16 (Transportation), Second Schedule.
4	20 Jun 2024 20 June 2024	Libat Urus Bagi Aktiviti 1 (Pertanian), Jadual Pertama dan Kedua dan Aktiviti 4 (Perikanan), Jadual Pertama dan Kedua. Engagement for Activity 1 (Agriculture), First and Second Schedule and Activity 4 (Fisheries), First and Second Schedule.
5	16 Julai 2024 16 July 2024	Sesi Libat Urus Pemakaian Cadangan Pindaan Perintah Kualiti Alam Sekeliling (Aktiviti Yang Ditetapkan) (Penilaian Kesan Kepada Alam Sekeliling) 20XX bersama agensi dan industri di Negeri Sabah. Engagement Session on the Implementation of the Proposed Amendment to the Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 20XX with agencies and industries in Sabah.

BIL. NO.	TARIKH DATE	SESI LIBAT URUS BAGI CADANGAN PINDAAN PERINTAH KUALITI ALAM SEKELILING (AKTIVITI YANG DITETAPKAN) (PENILAIAN KESAN KEPADA ALAM SEKELILING) 20XX, 2024 / ENGAGEMENT SESSION WITH AGENCIES AND INDUSTRY FOR PROPOSED AMENDMENTS TO THE ENVIRONMENTAL QUALITY ORDER (PRESCRIBED ACTIVITIES) (ENVIRONMENTAL IMPACT ASSESSMENT) 20XX, 2024
6	18 Julai 2024 18 July 2024	SLU Pemakaian Cadangan Pindaan Perintah Kualiti Alam Sekeliling (Aktiviti Yang Ditetapkan) (Penilaian Kesan Kepada Alam Sekeliling) 20XX bersama agensi dan industri di Negeri Sarawak. Engagement Session on the Implementation of the Proposed Amendment to the Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 20XX with agencies and industries in Sarawak.
7	20 Ogos 2024 20 August 2024	Libat Urus Bagi Aktiviti 9 (Petroleum), Jadual Pertama dan Kedua. Engagement for Activity 9 (Petroleum), First and Second Schedule.
8	21 Ogos 2024 21 August 2024	Libat Urus Bagi Aktiviti 14 (Pengolahan dan Pelupusan Buangan Terjadual), Jadual Pertama dan Kedua. Engagement for Activity 14 (Waste Treatment and Disposal), First and Second Schedule.
9	22 Ogos 2024 22 August 2024	Libat Urus Bagi Aktiviti 7 (Penebusgunaan Tanah), Jadual Pertama dan Kedua. Engagement for Activity 7 (Land Reclamation), First and Second Schedule.
10	10 September 2024 10 September 2024	Libat Urus Bagi Aktiviti 13 (Pembangunan di Kawasan Cerun), Jadual Pertama dan Kedua. Engagement for Activity 13 (Development in Slope Area), First and Second Schedule.
11	18 September 2024 18 September 2024	Libat Urus Bagi Aktiviti 6 (Industri), Jadual Pertama dan Kedua Bagi Industri Kimia, Petrokimia, Simen, Pulpa dan Kertas, Kitar Semula Kertas. Engagement for Activity 6 (Industry), First and Second Schedule for Chemical, Petrochemical, Cement, Pulp and Paper, Paper Recycling Industries.
12	14 Oktober 2024 14 October 2024	Libat Urus Bagi Aktiviti 6 (Industri), Jadual Pertama dan Kedua bagi Industri Bukan Besi, Besi dan Keluli serta Mineral. Engagement for Activity 6 (Industry), First and Second Schedule for Non-Ferrous, Iron & Steel and Mineral Industries.
13	16 Oktober 2024 16 October 2024	Libat Urus Bagi Aktiviti 16 (Perumahan), Aktiviti 17 (Pembangunan Estet Industri), Aktiviti 18 (Bandar Baharu) dan Aktiviti 20 (Jalan) Jadual Pertama. Engagement for Activity 16 (Housing), Activity 17 (Industrial Estate Development), Activity 18 (New Township) and Activity 20 (Road) First Schedule.





▲ Sesi Libat Urus Persediaan Penyediaan Laporan *Regulatory Impact Statement* (RIS) bagi Cadangan Pindaan Perintah Kualiti Alam Sekeliling (Aktiviti Yang Ditetapkan) (Penilaian Kesan Kepada Alam Sekeliling) 20XX / Engagement Session on Preparation for the Development of the Regulatory Impact Statement (RIS) for the Proposed Amendment to the Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 20XX



▶ Sesi Libat Urus Cadangan Pindaan Perintah Kualiti Alam Sekeliling (Aktiviti Yang Ditetapkan) (Penilaian Kesan Kepada Alam Sekeliling) 20XX , Aktiviti 13 (Pembangunan di Kawasan Cerun), Jadual Pertama dan Kedua / Engagement Session on the Proposed Amendment to the Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 20XX, Activity 13 (Development in Slope Areas), First and Second Schedule



▶ Sesi Libat Urus Pemakaian Cadangan Pindaan Perintah Kualiti Alam Sekeliling (Aktiviti yang Ditetapkan) (Penilaian Kesan Kepada Alam Sekeliling) 20XX di Sabah / Engagement Session on the Application of the Proposed Amendment to the Environmental Quality Order (Prescribed Activities) (Environmental Impact Assessment) 20XX in Sabah

Kajian Penggubalan Peraturan-Peraturan Kualiti Alam Sekeliling (Aktiviti yang Ditetapkan) (Penilaian Kesan Kepada Alam Sekeliling) 20XX

Kajian Penggubalan Peraturan-Peraturan Kualiti Alam Sekeliling (Aktiviti yang Ditetapkan) (Penilaian Kesan Kepada Alam Sekeliling) 20XX telah dijalankan di bawah Rancangan Malaysia Kedua Belas bagi tempoh selama 20 bulan bermula dari Oktober 2023 sehingga Mei 2025.

Objektif utama kajian projek ini adalah untuk membentuk kajian dokumen Analisis Impak (Regulatory Impact Statement, RIS) Peraturan-Peraturan Kualiti Alam Sekeliling (Aktiviti yang Ditetapkan) (Penilaian Kesan Kepada Alam Sekeliling) 20XX (PPKAS EIA 20XX) yang memenuhi kehendak pihak MPC dan membentuk draf PPKAS EIA 20XX di bawah Seksyen 34A, Akta Kualiti Alam Sekeliling

Study of Drafting of Environmental Quality Regulations (Prescribed Activities) (Environmental Impact Assessment) 20XX

Study of Drafting Environmental Quality Regulations (Prescribed Activities) (Environmental Impact Assessment) 20XX was conducted under the Twelfth Malaysia Plan for a period of 20 months starting from October 2023 until May 2025.

The main objectives of this project study is to form a study of the Impact Analysis document (Regulatory Impact Statement, RIS) of the Environmental Quality Regulations (Prescribed Activities) (Environmental Impact Assessment) 20XX (PPKAS EIA 20XX) which meets the requirements of the MPC and form the draft of PPKAS EIA 20XX under Section 34A, Environmental Quality Act 1974 as a clear source of authority for

1974 sebagai punca kuasa yang jelas kepada perkara-perkara yang melibatkan pemprosesan Laporan EIA dan penguatkuasaan syarat-syarat kelulusan EIA.

Bagi tahun 2024, empat (4) bengkel dan dua (2) sesi libat urus telah dilaksanakan melibatkan pemegang taruh dan pihak berkepentingan seperti berikut:

i. Agensi Kerajaan;
ii. Agensi Bukan Kerajaan;
iii. Jururunding EIA;
iv. Juruaudit alam sekitar;
v. Penggerak Projek;
vi. Badan Bukan Kerajaan (NGO); dan
vii. Pegawai Jabatan Alam Sekitar (Ibu Pejabat dan Negeri).

Antara pengisian bengkel dan sesi libat urus adalah bengkel RIA, pembentangan draf Peraturan-Peraturan Kualiti Alam Sekeliling (Aktiviti yang Ditetapkan) (Penilaian Kesan Kepada Alam Sekeliling) 20XX, draf SOP rayuan berkaitan EIA, bon dan kompaun serta sesi perbincangan berkumpulan bagi mendapatkan input, cadangan serta komen penambahbaikan.

Semua pandangan dan input yang diterima melalui bengkel dan libat urus yang dilaksanakan akan diambil kira dalam melengkapkan kajian ini di mana Jabatan berharap kajian ini akan membantu dalam meningkatkan tadbir urus pelaksanaan pemprosesan Laporan Penilaian Kesan kepada Alam Sekeliling (EIA) dan memantapkan penguatkuasaan EIA.

matters involving the processing of EIA Reports and enforcement of EIA approval conditions.

In the year 2024, four (4) workshops and two (2) engagement sessions have been implemented involving stakeholders as follows:

i. Government Agencies;
ii. Non-Governmental Agencies;
iii. EIA Consultant;
iv. Environmental auditor;
v. Project Proponent;
vi. Non-Governmental Organizations (NGOs); and
vii. Environment Department Officer (HQ and States).

The workshops and engagement sessions will include RIA workshop, the presentation of the draft Environmental Quality Regulations (Prescribed Activities) (Environmental Impact Assessment) 20XX, the draft SOP for appeals related to EIA, bonds and compounds and group discussion sessions to obtain input, suggestions, and comments for improvement.

All the opinions and input received through the workshops and engagements carried out will be considered in completing this study to which the Department hopes that this study will help in improving the governance of the implementation of Environmental Impact Assessment (EIA) Report processing and strengthen the enforcement of EIA.



▲ Sesi Perbincangan dan Memberikan Input berkaitan bersama Peserta Bengkel dan Sesi Libat Urus
Discussion Session to get Input with Workshop and Engagement Session Participants



▲ Sesi Soal Jawab Bersama Peserta Bengkel dan Sesi Libat Urus
Question and Answer Session with Workshop and Engagement Session Participants



▲ Peserta Bengkel dan Libat Urus Kajian Penggubalan Peraturan-Peraturan Kualiti Alam Sekeliling (Aktiviti yang Ditetapkan) (Penilaian Kesan Kepada Alam Sekeliling) 20XX / Workshop and Engagement Session Participants in Studying the Drafting of Environmental Quality Regulations (Prescribed Activities) (Environmental Impact Assessment) 20XX

Kajian Bagi Pengenaan Fi Berkaitan Dengan Pemprosesan Laporan Penilaian Kesan Kepada Alam Sekeliling (Environmental Impact Assessment, EIA)

Kajian Bagi Pengenaan Fi Berkaitan Dengan Pemprosesan Laporan Penilaian Kesan Kepada Alam Sekeliling (Environmental Impact Assessment, EIA) telah dijalankan di bawah Rancangan Malaysia Kedua Belas bagi tempoh selama 19 bulan bermula dari Mei 2024 sehingga Disember 2025.

Objektif utama kajian projek ini adalah untuk melaksanakan kajian bagi cadangan nilai pengenaan fi yang sewajarnya dalam proses yang berkaitan dengan keperluan di bawah Seksyen 34A, Seksyen 33A dan Seksyen 35 di bawah AKAS 1974 atau peruntukan berkaitan.

Bagi tahun 2024, lima (5) sesi libat urus telah dilaksanakan melibatkan pemegang taruh dan pihak berkepentingan seperti berikut:

i. Agensi Kerajaan
ii. Agensi Bukan Kerajaan;
iii. Jururunding EIA;
iv. Individu Yang Dilantik;
v. Penggerak Projek;
vi. Badan Bukan Kerajaan (NGO); dan
vii. Pegawai Jabatan Alam Sekitar.

Antara pengisian sesi libat urus adalah pembentangan kertas taklimat berkaitan Penambahbaikan EIA oleh JAS, Skop dan Perincian Kajian Bagi Pengenaan Fi Berkaitan Dengan Pemprosesan Laporan EIA oleh perunding Aurecon Lestari Sdn. Bhd., Pelaksanaan Fi Proses EIA di Sabah oleh pihak Jabatan Perlindungan Alam Sekitar (JPAS) Sabah, Pelaksanaan Fi Proses EIA di Sarawak oleh pihak Lembaga Sumber Asli dan Alam Sekitar (NREB) Sarawak serta sesi perbincangan berkumpulan.

Semua pandangan dan input yang diterima melalui sesi libat urus yang dilaksanakan akan diambil kira dalam melengkapkan kajian ini dan Jabatan berharap kajian ini akan membantu dalam meningkatkan tadbir urus pelaksanaan pemprosesan Laporan Penilaian Kesan kepada Alam Sekeliling (EIA) pada masa akan datang dan pengurusan alam sekitar secara umumnya.

Study on the Imposition of Fees Related to the Processing of Environmental Impact Assessment (EIA) Reports

The Study on The Imposition of Fees Related to The Processing of Environmental Impact Assessment (EIA) Reports has been conducted under the Twelfth Malaysia Plan for 19 months period starting from May 2024 until December 2025.

The main objective of this project study is to carry out a study for the proposal of appropriate fee imposition value in the processes related to the requirements under Section 34A, Section 33A and Section 35 under Environmental Quality Act 1974 (EQA 1974) or related provisions.

For the year 2024, five (5) engagement sessions had been held involving stakeholders and interested parties as follows:

i. Government Agencies;
ii. Non-Governmental Agencies;
iii. EIA Consultants;
iv. Appointed Individuals;
v. Project Proponents;
vi. Non-Governmental Organizations (NGOs); and
vii. DOE Officers.

The contents of the engagement session revolved around the presentation of a briefing paper related to the Improvement of EIA by the DOE, the Scope and Details of the Study for the Imposition of Fees Related to the Processing of the EIA Report by the consultant Aurecon Lestari Sdn. Bhd., Implementation of the EIA Process Fee in Sabah by the Sabah Environmental Protection Department (JPAS), Implementation of the EIA Process Fee in Sarawak by the Natural Resources and Environment Board (NREB) and group discussion sessions.

All the opinions and inputs received through the engagement sessions that were held will be taken into account in completing this study and DOE hopes that this study will aid in improving the governance of Environmental Impact Assessment Report (EIA) processing implementation in future and environmental management in general.



▲ Sesi Perbincangan dan Memberikan Input Berkaitan bersama Peserta Sesi Libat Urus
Session for Discussing and Providing Relevant Input with the Participants of the Engagement Session



▲ Sesi Soal Jawab bersama Peserta Sesi Libat Urus
Question and Answer Session with Participants of the Engagement Session



▲ Peserta Sesi Libat Urus Kajian bagi Pengenaan Fi Berkaitan dengan Pemprosesan Laporan EIA
Participants of the Engagements of Study for the Imposition of Fees Related to EIA Report Processing

KERJASAMA DAN LAWATAN TEKNIKAL JABATAN ALAM SEKITAR DENGAN PIHAK BERKEPENTINGAN

Jabatan Alam Sekitar (JAS) secara aktif turut melaksanakan libat urus bersama pihak berkepentingan dalam memberikan khidmat nasihat perancangan pembangunan dan penyelarasan polisi berkaitan pengurusan alam sekitar khususnya melibatkan pembangunan projek berimpak tinggi yang memacu pembangunan negara.

Lawatan teknikal juga dilaksanakan dengan kerjasama pihak berkepentingan untuk memantapkan keupayaan pembangunan modal insan bagi semua pihak terlibat.

Mesyuarat Jawatankuasa Penyelarasan Isu-Isu Perancangan dan Alam Sekitar Antara Jabatan Alam Sekitar (JAS) dan Jabatan Perancangan Bandar dan Desa (PLANMalaysia)

Mesyuarat Jawatankuasa Penyelarasan Isu-Isu Perancangan dan Alam Sekitar Antara Jabatan Alam Sekitar (JAS) dan PLANMalaysia yang dipengerusikan bersama oleh YBrs. Tuan Haji Shafe'ee bin Yasin, Timbalan Ketua Pengarah (Pembangunan) JAS dan YBrs. TPr. Tuan Haji Hassan bin Yaakob, Timbalan Ketua Pengarah (Pembangunan) PLANMalaysia telah berlangsung pada 15 November 2024 bertempat di JAS Ibu Pejabat. Mesyuarat ini turut dihadiri oleh Pengarah-Pengarah Bahagian dan Negeri kedua-dua agensi JAS dan PLANMalaysia secara hibrid.

Mesyuarat ini merupakan platform bagi JAS dan PLANMalaysia membincangkan isu-isu semasa mengenai perancangan dan alam sekitar serta turut membincangkan isu bagi penambahbaikan perlaksanaan proses kerja berhubung dengan pengurusan dan penilaian kepada Laporan Penilaian Kesan Kepada Alam Sekeliling (EIA).

JAS dan PLANMalaysia berharap mesyuarat dua hala ini dapat diteruskan secara berkala dalam memastikan kedua-dua agensi dapat melaksanakan fungsi dan peranan sebaiknya dalam pemeliharaan dan pemuliharaan alam sekitar.

COLLABORATION AND TECHNICAL VISIT DEPARTMENT OF ENVIRONMENT WITH STAKEHOLDERS

Department of Environment (DOE) actively engages with stakeholders to ensure that administrative affairs run smoothly. The Department of Environment (DOE) actively engages with stakeholders in development planning input and coordinating policies related to environmental management, especially involving the development of high-impact projects in spurring the development of the country.

Technical visits are also being arranged with the collaboration of stakeholders to enhance the capacity buildings for all parties.

Meeting of the Committee for Coordinating Planning and Environmental Issues between the Department of Environment (DOE) and the Department of Town and Country Planning (PLANMalaysia)

The meeting of the Committee for Coordinating Planning and Environmental Issues between the Department of Environment (DOE) and PLANMalaysia, co-chaired by YBrs. Tuan Haji Shafe'ee bin Yasin, Deputy Director-General (Development) of DOE, and YBrs. TPr. Tuan Haji Hassan bin Yaakob, Deputy Director-General (Development) of PLANMalaysia, was held on 15 November 2024 at the DOE Headquarters. The meeting was also attended by the Directors of the Divisions and States from both DOE and PLANMalaysia in a hybrid format.

This meeting served as a platform for DOE and PLANMalaysia to discuss current issues related to planning and the environment, as well as to deliberate on matters for improving the implementation of work processes concerning the management and assessment of Environmental Impact Assessment (EIA) Reports.

DOE and PLANMalaysia hope that this bilateral meeting will continue regularly to ensure both agencies can effectively carry out their functions and roles in environmental preservation and conservation.



▲ Timbalan Ketua Pengarah (Pembangunan) PLANMalaysia sedang Menandatangani Buku Pelawat JAS sambil Disaksikan oleh Timbalan Ketua Pengarah (Pembangunan) JAS dan Pegawai-pegawai JAS & PLANMalaysia / Deputy Director General (Development) of PLANMalaysia Signing the DOE Visitors' Book while being Witnessed by the Deputy Director General (Development) of DOE and DOE & PLANMalaysia Officers



▲ Sebahagian Ahli Mesyuarat (Terdiri dari Pegawai Kanan JAS dan PLANMalaysia) yang telah Menghadiri Mesyuarat Jawatankuasa Penyelarasan Isu-Isu Perancangan dan Alam Sekitar Antara JAS dan PLANMalaysia / Some of the Members of the Meeting (Consisting of Senior DOE and PLANMalaysia Officers) who Attended the Planning and Environmental Issues Coordination Committee Meeting between DOE and PLANMalaysia



▲ Pengerusi Bersama Mesyuarat - Timbalan Ketua Pengarah (Pembangunan) JAS dan Timbalan Ketua Pengarah (Pembangunan) PLANMalaysia / The Co-Chairs of the Meeting - Deputy Director General (Development) of DOE and the Deputy Director General (Development) of PLANMalaysia



▲ Sidang Mesyuarat Jawatankuasa Penyelarasan Isu-Isu Perancangan dan Alam Sekitar antara JAS dan PLANMalaysia / Meeting of the Coordinating Committee on Planning and Environmental Issues between DOE and PLANMalaysia

Mesyuarat Dua Hala Bagi Ketetapan Pelaksanaan Projek-Projek Perlombongan dan Kuari di Malaysia antara Jabatan Alam Sekitar (JAS) dan Jabatan Mineral dan Geosains (JMG)

Mesyuarat Dua Hala Bagi Ketetapan Pelaksanaan Projek-Projek Perlombongan dan Kuari di Malaysia antara Jabatan Alam Sekitar (JAS) dan Jabatan Mineral dan Geosains (JMG) yang dipengerusikan bersama oleh YBhg. Dato' Wan Abdul Latiff bin Wan Jaffar, Ketua Pengarah JAS dan YBhg. Datuk Haji Zamri bin Ramli, Ketua Pengarah JMG telah berlangsung pada 3 Disember 2024 bertempat di JAS Ibu Pejabat. Mesyuarat ini turut dihadiri oleh Pengarah-Pengarah Bahagian dan Negeri kedua-dua agensi JAS dan JMG secara hibrid iaitu kombinasi fizikal dan atas talian.

Mesyuarat ini merupakan platform bagi JAS dan JMG membincangkan bersama isu bagi penambahbaikan pelaksanaan Laporan Penilaian Kesan Kepada Alam Sekeliling (EIA) serta pelaksanaan projek-projek perlombongan dan kuari di Malaysia.

JAS dan JMG berharap mesyuarat dua hala ini dapat diteruskan secara berkala dalam memastikan kedua-dua agensi dapat melaksanakan fungsi, peranan dan bidang tugas supaya saling melengkapi antara kedua-dua agensi dalam pemeliharaan dan pemuliharaan alam sekitar.

Bilateral Meeting on the Implementation of Mining and Quarrying Projects in Malaysia between the Department of Environment (DOE) and the Department of Minerals and Geoscience (JMG)

The Bilateral Meeting on the Implementation of Mining and Quarrying Projects in Malaysia between the Department of Environment (DOE) and the Department of Minerals and Geoscience (JMG), co-chaired by YBhg. Dato' Wan Abdul Latiff bin Wan Jaffar, Director-General of DOE and YBhg. Datuk Haji Zamri bin Ramli, Director-General of JMG, took place on 3 December 2024 at the DOE Headquarters. The meeting was also attended by the Directors of the Divisions and States from both DOE and JMG in a hybrid format, combining physical and online participation.

This meeting served as a platform for DOE and JMG to discuss issues related to the improvement of the implementation of Environmental Impact Assessment (EIA) Reports as well as the execution of mining and quarrying projects in Malaysia.

DOE and JMG hope that this bilateral meeting will continue regularly to ensure both agencies can effectively carry out their functions, roles, and responsibilities, complementing each other in the preservation and conservation of the environment.



▲ Sidang Mesyuarat Dua Hala bagi Ketetapan Pelaksanaan Projek-Projek Perlombongan dan Kuari di Malaysia antara JAS dan JMG / Bilateral Meeting for Decisions Regarding the Implementation of Mining and Quarry Projects in Malaysia between DOE and JMG

Mesyuarat Penyelarasan Penguatkuasaan Pelan Pengurusan Hidupan Liar oleh Jabatan Perlindungan Hidupan Liar dan Taman Negara (PERHILITAN)

Mesyuarat Penyelarasan Penguatkuasaan Pelan Pengurusan Hidupan Liar bersama pihak Jabatan Perlindungan Hidupan Liar dan Taman Negara (PERHILITAN) Semenanjung Malaysia diadakan pada 15 Februari 2024 bertempat di Bilik Cempaka, Jabatan Alam Sekitar. Mesyuarat ini dipengerusikan oleh YBhg. Dato' Wan Abdul Latiff bin Wan Jaffar, Ketua Pengarah Alam Sekitar dan turut dihadiri bersama YBhg. Dato' Abdul Kadir bin Abu Hashim, Ketua Pengarah PERHILITAN. Mesyuarat ini melibatkan pegawai-pegawai daripada Bahagian Penilaian JAS Ibu Pejabat, Bahagian Penguatkuasa JAS Ibu Pejabat manakala pihak PERHILITAN pula dihadiri oleh Bahagian Konservasi Hidupan Liar dan Bahagian Penguatkuasaan PERHILITAN.

Mesyuarat ini diadakan susulan daripada isu yang berbangkit semasa Mesyuarat Prosiding Jawatankuasa Kira-Kira Wang Negara berhubung Auditan Khas Pengurusan Hutan dan Impak Kepada Alam Sekitar pada 29 Januari 2024. Isu yang dibangkitkan adalah berkaitan kehilangan habitat asal berikutan perubahan guna tanah dan pencerobohan penempatan penduduk dan kawasan pertanian sehingga berpotensi mewujudkan konflik manusia-hidupan liar. Dalam hal ini pihak PERHILITAN sebagai agensi Kerajaan yang dipertanggungjawabkan dalam konservasi habitat dan spesies fauna liar negara telah mengambil inisiatif untuk mewajibkan pematuhan kepada *Wildlife Management Plan* (WMP) bagi sebarang projek yang melibatkan habitat hidupan liar.

Sehubungan dengan itu, berdasarkan halatuju pihak PERHILITAN berhubung penemuan Auditan Khas Pengurusan Hutan Dan Impak Kepada Alam Sekitar berkaitan isu kesejahteraan sosial dan hidupan liar, JAS berbesar hati untuk melihat bagaimana penguatkuasaan bagi pematuhan kepada WMP ini dapat dilaksanakan di bawah perundangan Akta Kualiti Alam Sekeliling 1974.

JAS mengambil perhatian bahawa keperluan penguatkuasaan terhadap langkah-langkah bagi mengawal impak negatif ke atas hidupan liar kesan daripada gangguan habitat hidupan liar ini perlu dilaksanakan disebabkan oleh pembangunan negara yang semakin pesat.

Coordination Meeting on Wildlife Management Plan (WMP) Enforcement by Department of Wildlife and National Parks (PERHILITAN)

The Wildlife Management Plan (WMP) Enforcement Coordination Meeting with the Department of Wildlife Protection and National Parks (PERHILITAN) of Peninsular Malaysia on 15 February 2024 was held in the Cempaka Room, Department of Environment. This meeting was chaired by YBhg. Dato' Wan Abdul Latiff bin Wan Jaffar, Director General of Environment and also attended by YBhg. Dato' Abdul Kadir bin Abu Hashim, Director General of PERHILITAN. This meeting involved officials from the Assesment Division of the DOE Headquarters, the Enforcement Division of the DOE Headquarters while PERHILITAN was attended by the Wildlife Conservation Division and the Enforcement Division of PERHILITAN.

This meeting was held as a follow-up to the issue that arose during the Proceedings of the National Accounts Committee Meeting regarding the Special Audit of Forest Management and Environmental Impact on 29 January 2024. The issue that was raised was related to the loss of original habitat following land use changes and the encroachment of population settlements and areas agriculture thus potentially creating human-wildlife conflict. In this regard, PERHILITAN as the Government agency responsible for the conservation of habitats and wildlife species in the country has taken the initiative to mandate compliance with the Wildlife Management Plan (WMP) for any project involving wildlife habitat.

In relation to that, based on PERHILITAN's guidance regarding the findings of the Special Audit on Forest Management and Environmental Impact related to social welfare and wildlife issues, the DOE looks forward to seeing how enforcement of compliance with WMP can be implemented under the legislation of the Environmental Quality Act 1974.

The DOE notes that the need for the enforcement of measures to control the negative impact on wildlife as a result of wildlife habitat disturbance needs to be implemented due to the rapid development of the country.

Susulan daripada mesyuarat ini, kedua-dua pihak telah bersetuju untuk bekerjasama dalam membentuk satu Jawatankuasa Pasukan Petugas untuk meneliti semula syor dan isu berkaitan perwakilan kuasa bagi membolehkan penguatkuasaan yang teratur terhadap WMP di bawah peruntukan undang-undang Akta Kualiti Alam Sekeliling 1974 dan juga pindaan Akta 716 di masa akan datang sebagai penyelesaian holistik.

Following this meeting, both parties have agreed to cooperate in forming a Task Force Committee to re-examine the recommendations and issues related to this delegation of authority to enable the enforcement of WMP to be implemented in an orderly manner under the legal provisions of the Environmental Quality Act 1974 and also the amendment of Act 716 in the future as a holistic solution.



▲ YBhg. Dato' Ketua Pengarah PERHILITAN sedang Menandatangani Buku Pelawat JAS sambil Disaksikan oleh YBhg. Dato' Ketua Pengarah JAS dan Timbalan Ketua Pengarah (Pembangunan) JAS
YBhg. Dato' Director General of PERHILITAN Signing the DOE Visitors Book while Witnessed by YBhg. Dato' Director General of DOE and Deputy Director General (Development) DOE



▲ Sesi Bergambar ahli Mesyuarat yang telah Menghadiri Mesyuarat Penyelarasan Penguatkuasaan Pelan Pengurusan Hidupan Liar
A Photo session of the Members who Attended Coordination Meeting on Wildlife Management Plan (WMP) Enforcement



▲ Mesyuarat Penyelarasan Penguatkuasaan Pelan Pengurusan Hidupan Liar
Meeting on Wildlife Management Plan (WMP) Enforcement Coordination





▶ Sesi Pertukaran Cenderamata oleh JAS dan PERHILITAN
Souvenir Exchange Session by DOE and PERHILITAN

Program Sinergi Jururunding EIA

Satu program Sinergi Jururunding EIA telah berlangsung di Putrajaya pada 25 September 2024. Program ini melibatkan penyertaan 100 orang Jururunding EIA yang berdaftar dengan Jabatan Alam Sekitar di bawah Skim Pendaftaran Jururunding EIA serta pegawai - pegawai Jabatan Alam Sekitar.

Program ini julung kalinya menghimpunkan Jururunding EIA daripada pelbagai kategori skim iaitu jururunding EIA(C), CS, SS, AC dan juga ACS. Sinergi Jururunding EIA adalah program yang dibentuk sebagai usaha Jabatan bagi memperkukuhkan pembangunan modal insan di kalangan jururunding EIA dalam melaksanakan tanggungjawab dan peranan sebagai Orang Yang Layak menjalankan kajian dan menyediakan EIA Laporan EIA.

Selain itu, kehadiran jururunding EIA dalam pelbagai bidang kepakaran ini membolehkan mereka bertukar-tukar pandangan dan pendapat dalam semua aspek pengurusan alam sekitar dan meluaskan *networking* di kalangan professional alam sekitar.

Program Sinergi Jururunding EIA ini melibatkan pembentangan empat (4) kertas iaitu:

i. Kertas Pembentangan 1: Kompetensi Jururunding EIA dan Kualiti Laporan EIA - Puan Rohimah binti Ayub, Pengarah Bahagian Penilaian, Jabatan Alam Sekitar Malaysia

ii. Kertas Pembentangan 2: Tanggungjawab Ketua Pasukan Jururunding EIA dan Penulisan Laporan EIA yang Baik - Dr. G. Balamurugan, Pengarah Urusan, Aurecon Lestari Sdn. Bhd.

iii. Kertas Pembentangan 3: Tanggungjawab Jururunding Subjek dan Penulisan Laporan EIA Bagi Skop Kajian - Puan Fasihah binti Mohd Yusof, Jururunding EIA, Green Orbis Environmental Sdn. Bhd.

iv. Kertas Pembentangan 4: Libat Urus Kajian Bagi Pengenaan Fi Berkaitan Pemprosesan Laporan EIA di Bawah Projek RMKe -12 - Encik Wan Mujahid bin Wan Hamidon, Jururunding EIA, Aurecon Lestari Sdn. Bhd.

Selain itu, program ini menjadi platform mendapatkan input berkenaan kajian pengenaan fi yang sewajarnya dalam proses yang berkaitan dengan keperluan di bawah Seksyen 33A, Seksyen 34A dan Seksyen 35 di bawah AKAS 1974 atau peruntukan berkaitan. Projek Kajian ini adalah di bawah Rancangan Malaysia Ke-12 yang dilaksanakan oleh perunding yang dilantik iaitu Aurecon Lestari Sdn. Bhd.

EIA Consultant Synergy Program

An EIA Consultant Synergy program was held in Putrajaya on 25 September 2024. This program involved the participation of 100 EIA Consultants registered with the Department of Environment under the EIA Consultant Registration Scheme as well as Department of Environment officers.

For the first time, this program brought together EIA Consultants from various scheme categories, including EIA(C), CS, SS, AC and ACS consultants. EIA Consultant Synergy program was established as part of the Department effort to strengthen the capacity building among EIA consultants in fulfilling their responsibilities and roles as Qualified Persons in conducting EIA studies and preparing EIA Reports.

Furthermore, the presence of EIA consultants from various fields of expertise provides a valuable opportunity for knowledge exchange and discussion on all aspects of environmental management while expanding professional networking.

This EIA Consultant Synergy Program involves the presentation of four (4) papers, namely:

i. Presentation Paper 1: EIA Consultant Competency and EIA Report Quality - Mrs. Rohimah binti Ayub, Director of the Assessment Division, Department of Environment Malaysia

ii. Presentation Paper 2: Responsibilities of the EIA Consultant Team Leader and Writing a Good EIA Report - Dr. G. Balamurugan, Managing Director, Aurecon Lestari Sdn. Bhd.

iii. Presentation Paper 3: Responsibilities of the Subject Consultant and Writing the EIA Report for the Scope of the Study - Mrs. Fasihah binti Mohd Yusof, EIA Consultant, Green Orbis Environmental Sdn. Bhd.

iv. Presentation Paper 4: Involvement in the Study for the Imposition of Fees Related to EIA Report Processing Under the 12MP Project - Mr. Wan Mujahid bin Wan Hamidon, EIA Consultant, Aurecon Lestari Sdn. Bhd.

In addition, this program serves as a platform to obtain input regarding the study of appropriate fee imposition in the process related to the requirements under Section 33A, Section 34A, and Section 35 under EQA 1974 or related provisions. This Study Project is under the 12th Malaysia Plan implemented by the appointed consultant, Aurecon Lestari Sdn. Bhd.

Program ini diharap dapat memberikan manfaat kepada semua peserta yang terlibat. Semua pandangan dan input yang diterima akan diambil kira dalam melengkapkan kajian ini dan Jabatan berharap kajian ini akan membantu dalam meningkatkan tadbir urus pelaksanaan pemprosesan Laporan Penilaian Kesan kepada Alam Sekeliling (EIA) pada masa akan datang dan pengurusan alam sekitar secara umumnya.

This program is expected to be beneficial to all participants involved. All views and inputs received are considered in completing this study and the Department hopes that this study will help in improving the governance of the Environmental Impact Assessment (EIA) Reports implementation process in the future and environmental management in general.



▲ Pengarah Bahagian Penilaian, Jabatan Alam Sekitar merasmikan Program Sinergi Jururunding EIA di Hotel Dorsett Putrajaya / Director of the Assessment Division, Department of Environment Officiates the EIA Consultant Synergy Program at the Dorsett Putrajaya Hotel



▲ Kertas Pembentangan 2: Tanggungjawab Ketua Pasukan Jururunding EIA dan Penulisan Laporan EIA yang Baik - Dr. G. Balamurugan, Pengarah Urusan, Aurecon Lestari Sdn. Bhd. Presentation Paper 2: Responsibilities of the EIA Consultant Team Leader and Writing a Good EIA Report - Dr. G. Balamurugan, Managing Director, Aurecon Lestari Sdn. Bhd.



▲ Kertas Pembentangan 4: Libat Urus Kajian bagi Pengenaan Fi berkaitan Pemprosesan Laporan EIA di bawah Projek RMKe -12 - Encik Wan Mujahid bin Wan Hamidon, Jururunding EIA, Aurecon Lestari Sdn. Bhd. / Presentation Paper 4: Engaging in the Study for the Imposition of Fees Related to the Processing of EIA Reports under the 12MP Project - Mr. Wan Mujahid bin Wan Hamidon EIA Consultant, Aurecon Lestari Sdn. Bhd.



▲ Kertas Pembentangan 1: Kompetensi Jururunding EIA dan Kualiti Laporan EIA - Puan Rohimah binti Ayub, Pengarah Bahagian Penilaian, Jabatan Alam Sekitar Malaysia Presentation Paper 1: EIA Consultant Competency and EIA Report Quality - Puan Rohimah binti Ayub, Director of Assessment Division, Department of Environment Malaysia



▲ Kertas Pembentangan 3: Tanggungjawab Jururunding Subjek dan Penulisan Laporan EIA bagi Skop Kajian - Puan Fasihah binti Mohd Yusof, Jururunding EIA, Green Orbis Environmental Sdn. Bhd. / Presentation Paper 3: Subject Consultant Responsibilities and EIA Report Writing for the Scope of the Study – Mrs. Fasihah binti Mohd Yusof, EIA Consultant, Green Orbis Environmental Sdn. Bhd.



▲ Sesi Dialog Peserta bersama Panel
Dialogue Session with Participants and Panel

Lawatan Teknikal ke Projek Perlombongan *Rare Earth Element* (REE) di Mukim Kenering, Daerah Hulu Perak, Perak

Bahagian Penilaian, Jabatan Alam Sekitar telah menganjurkan program lawatan teknikal ke tapak perlombongan *ion-adsorption clay rare earth element* (REE) yang pertama di Malaysia yang terletak di Mukim Kenering, Perak pada 20 Februari 2024 yang lalu.

Seramai 37 orang peserta telah hadir diketuai oleh Puan Rohimah binti Ayub, Pengarah Bahagian Penilaian bersama dengan delegasi JAS lain yang terdiri daripada Pengarah JAS Negeri Sembilan, Pengarah JAS Negeri Negeri Kedah, Pengarah JAS Negeri Perak, wakil-wakil dari JAS Negeri Johor, JAS Negeri Pahang dan JAS Negeri Kelantan.

Kegunaan unsur nadir bumi (*Rare Earth Element*, REE) sangat pelbagai dan meluas di dalam industri seperti elektronik, teknologi hijau, pertahanan, automotif, petroleum dan sebagainya. Peningkatan permintaan terhadap REE di seluruh dunia terus berlaku disebabkan oleh peranannya yang penting dalam sektor-sektor tersebut.

Program peningkatan kapasiti dilaksanakan untuk melihat kaedah perlombongan leaching in-situ yang pertama di Malaysia yang telah beroperasi setelah mendapat kelulusan Laporan EIA pada 11 Mei 2022.

Objektif lawatan teknikal di tapak ini adalah untuk memberikan pendedahan secara *hands-on* kepada pegawai JAS dalam meningkatkan ilmu pengetahuan dalam bidang perlombongan REE dan meneliti dengan lebih terperinci kaedah pemantauan kualiti alam sekitar yang dilaksanakan dalam peringkat pengoperasian projek. Selain daripada itu, lawatan ini juga dapat memberikan nilai tambah (*added value*) kepada pegawai penilai dalam memproses Laporan EIA yang berkaitan.

Technical Visit to the Rare Earth Element (REE) Mining Project in Mukim Kenering, Hulu Perak District, Perak

The Assessment Division, Department of Environment has organized a technical visit program to the first ion-adsorption clay rare earth element (REE) mining site in Malaysia located in Mukim Kenering, Perak on 20 February 2024.

A total of 37 participants were present led by Puan Rohimah binti Ayub, Director of the Assessment Division with other DOE delegations including the Director of DOE State Negeri Sembilan, Director of DOE State Kedah, Director DOE State Perak, representatives from DOE State Johor, DOE State Pahang, and DOE State Kelantan.

The use of rare earth elements (Rare Earth Element, REE) is very diverse and widespread in industries such as electronics, green technology, defense, automotive, petroleum, and so on. Increasing demand for REEs around the world continues to occur due to their important role in these sectors.

This capacity building program was implemented to explore in-situ leaching mining method, the first of its kind in Malaysia which commenced operations following the approval of the EIA Report on 11 May 2022.

The objective of the technical site visit is to provide hands-on exposure to DOE officers in enhancing their knowledge in the field of REE mining and to closely examine tthe environmental quality monitoring methods implemented during the projects operational phase. Additionally, it is an added value to the assessment officer in processing the related EIA Report.



▲ Penggerak Projek MCRE Resources Sdn. Bhd., Wakil Jururunding dan Peserta di Tapak Projek Perlombongan REE / Project Proponent MCRE Resources Sdn. Bhd., Consultant Representatives, and Participants at the REE Mining Project Site



▲ Penerangan Kaedah Perlombongan In-situ Leaching kepada Peserta oleh Jururunding / Explanation to the In-situ Leaching Mining Method to the Participants by the Consultant



▲ Peserta bagi Pembangunan Kapasiti Pegawai JAS dalam Penilaian Laporan EIA / Participants for the Capacity Building of DOE Officers in the Evaluation of the EIA Report



▲ Sebahagian Proses Pengekstrakan di Tapak Projek Perlombongan REE / Part of the Extraction Processes at REE Mining Project Sites



▲ REE yang telah Diekstrak daripada Aktiviti Perlombongan REE di Tapak Projek / REE that has been Extracted from REE Mining Activities at the Project Site



▲ Peserta Lawatan Teknikal yang terdiri daripada JAS Negeri dan JAS Ibu Pejabat / Technical Visit Participants involving of DOE State and DOE Headquarters

Lawatan Teknikal ke Tapak Projek *Reclamation & Dredging Works for Penang South Reclamation* (PSR), Penang Anjuran Bahagian Penilaian, Jabatan Alam Sekitar Ibu Pejabat

Bahagian Penilaian, Jabatan Alam Sekitar telah menganjurkan lawatan teknikal ke tapak projek penambakan *Penang South Reclamation* (PSR) di Pulau Pinang pada 11 Disember 2024 yang diketuai oleh Puan Rohimah binti Ayub, Pengarah Bahagian Penilaian.

Program ini turut melibatkan wakil daripada Jabatan Alam Sekitar Negeri Pulau Pinang yang bertanggungjawab memantau pematuhan projek pembangunan tersebut terhadap syarat-syarat kelulusan Laporan EIA yang telah diluluskan pada 11 April 2023.

Program ini dilaksanakan bagi tujuan melihat status semasa peringkat penambakan projek yang sedang dijalankan bagi pembangunan Penang Silicon Island (PSI) dan aktiviti-aktiviti di persekitaran tapak projek seperti keadaan Pantai Esen yang terletak berhadapan dengan tapak projek penambakan tersebut.

Selain daripada itu, lawatan teknikal ini juga turut memberikan pendedahan secara *hands-on* kepada pegawai JAS dalam meningkatkan ilmu pengetahuan mengenai pembangunan projek penambakan dan meneliti dengan lebih terperinci kaedah pemantauan kualiti alam sekitar yang dilaksanakan semasa peringkat pembinaan projek. Selain daripada itu, lawatan ini juga dapat memberikan nilai tambah (*added value*) kepada pegawai penilai Laporan EIA dan penguatkuasaan projek-projek EIA yang berkaitan dengan penambakan di badan air.

Technical Visit to the Reclamation & Dredging Works Project Site for Penang South Reclamation (PSR), Penang Organized by the Assessment Section, Department of Environment Headquarters

The Assessment Division, Department of Environment organized a technical visit to the Penang South Reclamation (PSR) project site in Penang on 11 December 2024 led by Puan Rohimah binti Ayub, Director of the Assessment Division.

This program also involved representatives from the Department of Environment State Penang who are responsible in monitoring the development project's compliance with the EIA Report's approval conditions approved on 11 April 2023.

This program was conducted to assess the current reclamation progress of the project which is being developed for the development of Penang Silicon Island (PSI) as well as to observe the activities in the surrounding areas such as the condition of Esen Beach, located right in front of the reclamation site.

Additionally, this technical visit provides hands-on exposure to DOE officer to enhance their knowledge of reclamation projects development and to closely examine the assessment method of environmental quality monitoring implemented during the project construction phase. Furthermore, it serves as an added value for EIA Report assessment officer and the enforcement of EIA projects related to reclamation in water bodies.



◂ Taklimat daripada Wakil Penggerak Projek kepada Peserta daripada JAS Ibu Pejabat dan JAS Negeri Pulau Pinang / Briefing from Representatives of Project Proponent to Participants from DOE Headquarters and DOE State Penang



▲ Penggerak Projek menunjukkan Kawasan Tapak Projek Penambakan kepada Pengarah Bahagian Penilaian / The Project Proponent showed the Reclamation Project Site to the Director of the Assessment Division



▲ Antara Peserta yang Terlibat dengan Lawatan Teknikal ke Projek Penambakan / Among the Participants Involved in the Technical Visit to the Reclamation Project



▲ Penerangan berkaitan Kaedah Penstabilan yang dilaksanakan di Tapak Projek Penambakan / Explanation of the Stabilization Method Implemented at the Reclamation Project Site



▲ Penerangan berkaitan Kaedah Penstabilan yang dilaksanakan di Tapak Projek Penambakan / Explanation of the Stabilization Method Implemented at the Reclamation Project Site



▲ Perbincangan di antara Pengarah Bahagian Penilaian dan Wakil JAS Negeri Pulau Pinang / A Discussion Between the Director of the Assessment Division and Representative of DOE State Penang



▲ Pemasangan Amalan Pengurusan Terbaik bagi Mengawal Hakisan oleh Pekerja di Tapak Penambakan / Installation of Best Management Practices to Control Erosion by Workers at Reclamation Sites



◂ Amalan Pengurusan Terbaik bagi Mengawal Hakisan yang telah Dipasang di Tapak Penambakan / Best Management Practices for Erosion Control have been Installed at Reclamation Sites



▲ Peserta Lawatan Teknikal yang terdiri daripada JAS Negeri dan JAS Ibu Pejabat bersama Penggerak Projek / Participants of the Technical Visit - Representative from of the DOE State and DOE Headquarters with the Project Proponent



▲ Taklimat Keselamatan kepada semua Peserta Lawatan Teknikal / Safety briefing to all Participants of the Technical Visit

Lawatan Kerja Yang Berhormat Menteri Sumber Asli dan Kelestarian Alam (NRES) ke Kawasan Projek Pembangunan Ladang Hutan di Hutan Simpan Kledang Saiong, Perak

Bahagian Penilaian, Jabatan Alam Sekitar telah menyertai lawatan kerja Yang Berhormat Menteri Sumber Asli dan Kelestarian Alam (NRES) bersama Ketua Pengarah Alam Sekitar ke kawasan projek pembangunan ladang hutan di Hutan Simpan Kledang Saiong, Perak pada 27 Ogos 2024.

Lawatan tersebut dilaksanakan susulan daripada isu daripada Badan Bukan Kerajaan (*Non-Government Organization*, NGO) berkaitan pelaksanaan projek ladang hutan seluas 4,280 hektar di Hutan Simpan Kledang Saiong yang telah diluluskan oleh Jabatan Perhutanan Malaysia.

Official Visit by the Honorable Minister of Natural Resources and Natural Sustainability (NRES) to the Forest Farm Development Project Area in Saiong Kledang Reserve Forest, Perak

The Assessment Division, Department of Environment participated in an official visit by the Honorable Minister of Natural Resources and Environmental Sustainability (NRES), accompanied by the Director General of Environment to the forest plantation development project at Kledang Saiong Forest Reserve, Perak on 27 August 2024.

This visit was conducted in response to concern raised by Non-Government Organization (NGO) regarding the implementation of a 4,280 hectare forest plantation project within Kledang Saiong Forest Reserve which was approved by the Forestry Department of Malaysia.

Sepanjang lawatan kerja dijalankan, pihak Jabatan Perhutanan Malaysia telah memberikan penerangan yang jelas kepada wakil NGO yang hadir berkaitan kaedah pelaksanaan pembangunan projek ladang hutan tersebut. YBM juga turut menyatakan bahawa penguatkuasaan akan dijalankan secara bersepadu antara Jabatan Perhutanan Malaysia dan Jabatan Alam Sekitar bagi memastikan pelaksanaan pembangunan projek ladang hutan ini dapat dilaksanakan dengan mampan bagi menjamin kelestarian alam sekitar.

During the visit, the Forestry Department of Malaysia has provided comprehensive briefing to the NGO representatives on the implementation methods of the forest plantation development project. The Honourable Minister also stated that enforcement will be carried out in an integrated manner between the Forestry Department of Malaysia and the Department of Environment to ensure that the implementation of this forest plantation development project is carried out sustainably to safeguard environmental sustainability.



◂ Yang Berhormat Menteri NRES bersama Ketua Pengarah Alam Sekitar dan wakil NGO yang Hadir dalam Lawatan Kerja
The Minister of NRES together with the Director General of the Environment and NGO Representatives who Attended the Working Visit



▲ Yang Berhormat Menteri NRES bersama Ketua Pengarah Alam Sekitar dan Wakil NGO yang hadir sama bagi Lawatan Kerja / The Minister of NRES together with the Director General of the Environment and NGO Representatives who Attended the Working Visit



▲ Sesi Taklimat oleh Jabatan Perhutanan Negeri Perak kepada semua Peserta / Briefing Session by the Forestry Department Perak State to All Participants



BAB
CHAPTER
03

PENGAWASAN DAN PENGUATKUASAAN
MONITORING AND ENFORCEMENT

PENGAWASAN DAN PENGUATKUASAAN
MONITORING AND ENFORCEMENT

PENGAWASAN KUALITI AIR SUNGAI

Jabatan Alam Sekitar (JAS) meneruskan program pemantauan kualiti sungai pada 2024 untuk menentukan status kualiti air sungai dan mengesan perubahan dalam kualiti air sungai. Sampel air dikumpulkan dari stesen yang ditetapkan untuk in-situ dan analisis makmal bagi menentukan ciri fizikal-kimia dan biologi.

Indeks Kualiti Air (IKA) digunakan untuk mengukur tahap pencemaran dan kesesuaian jenis guna air seperti yang digariskan di dalam Standard Kualiti Air Kebangsaan (NWQS). Standard Kualiti Air Kebangsaan merupakan standard ambien untuk melindungi kepelbagaian biologi akuatik. Ia juga digunakan sebagai penanda aras untuk penetapan jenis guna air bagi sungai tertentu.

IKA dibahagi kepada tiga (3) kategori iaitu bersih, sederhana tercemar dan tercemar. Indeks ini adalah berdasarkan enam (6) parameter Oksigen Terlarut (DO), Permintaan Oksigen Biokimia (BOD), Permintaan Oksigen Kimia (COD), Ammoniakal Nitrogen (NH3-N), Pepejal Terampai (SS) dan pH.

Pada 2024, kualiti air sungai dinilai berdasarkan sejumlah 8,118 sampel yang diambil dari sejumlah 1,353 stesen pengawasan kualiti air sungai manual yang merangkumi 672 sungai di seluruh Malaysia seperti dalam **Jadual 3.1**.

RIVER WATER QUALITY MONITORING

The Department of Environment (DOE) continues the river water quality monitoring programme in 2024 to determine the status of river water quality and to detect changes in river water quality. Water samples were collected from designated stations for in-situ and laboratory analysis to determine its physical-chemical and biological characteristics.

The Water Quality Index (WQI) is used to indicate the level of pollution and the corresponding suitability in terms of water uses according to the National Water Quality Standards for Malaysia (NWQS). NWQS is an ambient standard to protect aquatic biodiversity. It is also used as benchmark for the setting of uses for certain rivers.

The WQI is divided into three (3) categories which are clean, slightly polluted, and polluted. The index is derived based on six (6) parameters, which are Dissolved Oxygen (DO), Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Ammoniacal Nitrogen (NH3-N), Suspended Solid (SS), and pH.

In 2024, river water quality was assessed based on a total of 8,118 samples taken from 1,353 manual river water quality monitoring stations covering 672 rivers in Malaysia as shown in **Table 3.1**.

Jadual 3.1: Senarai Lembangan Sungai dan Sungai-Sungai yang Dipantau mengikut Stesen, 2024
Table 3.1: List of the Catchments and Rivers Monitored by Station, 2024

NEGERI STATE	LEMBANGAN BASIN	SUNGAI RIVER	NOMBOR STESEN STATION NUMBER
Perlis	Sg. Perlis	Sg. Arau	1RPLS012
			1RPLS014
		Sg. Empangan Timah Tasoh	1RPLS015
		Sg. Jarum	1RPLS006
		Sg. Jernih	1RPLS004
			1RPLS005
		Sg. Kok Mak	1RPLS007
		Sg. Korok	1RPLS013
		Sg. Ngulang	1RPLS002
		Sg. Pelarit	1RPLS008
		Sg. Perlis	1RPLS001
		Sg. Serai	1RPLS003

Jadual 3.1: Senarai Lembangan Sungai dan Sungai-Sungai yang Dipantau mengikut Stesen, 2024
Table 3.1: List of the Catchments and Rivers Monitored by Station, 2024

NEGERI STATE	LEMBANGAN BASIN	SUNGAI RIVER	NOMBOR STESEN STATION NUMBER
Perlis	Sg. Perlis	Sg. Terusan Mada	1RPLS010
			1RPLS011
		Sg. Wang Kelian	1RPLS009
Kedah	Sg. Kedah	Sg. Ahning	1KKDH011
		Sg. Changlun	1KKDH016
		Sg. Janing	1KKDH007
		Sg. Kedah	1KKDH001
		Sg. Napoh	1KKDH017
		Sg. Padang Terap	1KKDH002
			1KKDH003
			1KKDH004
			1KKDH009
			1KKDH012
		Sg. Pedu	1KKDH005
		Sg. Pendang	1KKDH008
		Sg. Sintok	1KKDH018
		Sg. Tekai	1KKDH006
		Sg. Temin	1KKDH010
		Sg. Terusan Lengkuas	1KKDH014
		Sg. Terusan Mada Selatan	1KKDH013
		Sg. Terusan Tengah	1KKDH015
	Sg. Kerian	Sg. Kerian	1KKER001
	Sg. Kisap	Sg. Kisap	1KKSP001
	Sg. Kuah	Sg. Kuah	1KKUA001
	Sg. Merbok	Sg. Bakar Arang	1KMBK008
		Sg. Batu	1KMBK002
		Sg. Bongkok	1KMBK003
		Sg. Bukit Merah	1KMBK006
		Sg. Bukit Nanas	1KMBK011
		Sg. Korok	1KMBK009
		Sg. Merbok	1KMBK001
		Sg. Petani	1KMBK007
		Sg. Tok Pawang	1KMBK004
			1KMBK005
		Sg. Tupah	1KMBK010
	Sg. Muda	Sg. Chepir	1KMUD012
		Sg. Gunung Inas	1KMUD021
		Sg. Jerong	1KMUD002
			1KMUD003
		Sg. Karangan	1KMUD009
		Sg. Ketil	1KMUD007

Jadual 3.1: Senarai Lembangan Sungai dan Sungai-Sungai yang Dipantau mengikut Stesen, 2024
Table 3.1: List of the Catchments and Rivers Monitored by Station, 2024

NEGERI STATE	LEMBANGAN BASIN	SUNGAI RIVER	NOMBOR STESEN STATION NUMBER
Kedah	Sg. Muda	Sg. Muda	1KMUD001
			1KMUD004
			1KMUD005
			1KMUD013
			1KMUD014
			1KMUD015
			1KMUD016
			1KMUD018
			1KMUD019
			1KMUD023
			1KMUD024
			1KMUD025
		Sg. Pegang	1KMUD011
		Sg. Sedim	1KMUD008
			1KMUD017
		Sg. Tawar	1KMUD006
			1KMUD010
			1KMUD020
	Sg. Perai	Sg. Jarak	1KPRI018
			1KPRI019
			1KPRI024
		Sg. Keladi	1KPRI015
		Sg. Kulim	1KPRI014
			1KPRI016
			1KPRI017
			1KPRI023
			1KPRI025
		Sg. Seluang	1KPRI021
		Sg. Seluang Bawah	1KPRI020
	Sg. Ulu Melaka	Sg. Chenang	1KMLK006
		Sg. Melaka	1KMLK002
			1KMLK003
			1KMLK007
		Sg. Petang	1KMLK001
		Sg. Saga	1KMLK004
		Sg. Tuba	1KMLK005
Pulau Pinang	Sg. Bayan Lepas	Sg. Bayan Lepas	1PBLS003
		Sg. Tiram	1PBLS001
			1PBLS002
	Sg. Jawi	Sg. Chempedak	1PJWI003
		Sg. Jawi	1PJWI001

Jadual 3.1: Senarai Lembangan Sungai dan Sungai-Sungai yang Dipantau mengikut Stesen, 2024
Table 3.1: List of the Catchments and Rivers Monitored by Station, 2024

NEGERI STATE	LEMBANGAN BASIN	SUNGAI RIVER	NOMBOR STESEN STATION NUMBER
Pulau Pinang	Sg. Jawi	Sg. Junjong	1PJWI002
			1PJWI004
			1PJWI006
		Sg. Machang Bubok	1PJWI007
		Sg. Tengah	1PJWI005
	Sg. Juru	Sg. Ara	1PJRU006
		Sg. Juru	1PJRU001
			1PJRU012
		Sg. Kilang Ubi	1PJRU002
			1PJRU003
			1PJRU009
			1PJRU010
			1PJRU011
		Sg. Pasir	1PJRU004
		Sg. Permatang Rawa	1PJRU008
			1PJRU013
		Sg. Rambai	1PJRU005
			1PJRU007
	Sg. Kerian	Sg. Kechil	1PKER002
			1PKER005
		Sg. Kerian	1PKER003
			1PKER004
			1PKER006
			1PKER009
			1PKER014
		Sg. Serdang	1PKER007
	Sg. Kluang	Sg. Ara	1PKLU002
			1PKLU003
		Sg. Dua Besar	1PKLU005
		Sg. Kluang	1PKLU001
		Sg. Relau	1PKLU004
	Sg. Perai	Sg. Air Melintas	1PPRI007
		Sg. Jarak	1PPRI009
			1PPRI011
			1PPRI012
		Sg. Kereh	1PPRI006
			1PPRI008
			1PPRI024
		Sg. Kubang Semang	1PPRI005
		Sg. Perai	1PPRI003
			1PPRI004

Jadual 3.1: Senarai Lembangan Sungai dan Sungai-Sungai yang Dipantau mengikut Stesen, 2024
Table 3.1: List of the Catchments and Rivers Monitored by Station, 2024

NEGERI STATE	LEMBANGAN BASIN	SUNGAI RIVER	NOMBOR STESEN STATION NUMBER
Pulau Pinang	Sg. Pinang	Sg. Pertama	1PPRI022
		Sg. Seluang Bawah	1PPRI010
		Sg. Air Itam	1PPNG006
			1PPNG011
			1PPNG018
		Sg. Air Terjun	1PPNG019
		Sg. Batu Feringghi	1PPNG001
			1PPNG002
		Sg. Dondang	1PPNG012
			1PPNG013
			1PPNG014
			1PPNG015
			1PPNG016
			1PPNG017
		Sg. Jelutong	1PPNG010
		Sg. Pinang	1PPNG003
			1PPNG008
			1PPNG021
		Sg. Satu	1PPNG020
		Sg. Titi Kerawang	1PPNG004
Perak	Sg. Bernam	Sg. Bernam	1ABNM001
			1ABNM002
			1ABNM003
			1ABNM004
			1ABNM005
			1ABNM006
		Sg. Gelinting	1ABNM015
		Sg. Inki	1ABNM012
		Sg. Slim	1ABNM007
			1ABNM008
			1ABNM011
		Sg. Trolak	1ABNM009
			1ABNM010
			1ABNM014
	Sg. Bruas	Sg. Bruas	1ABRU001
			1ABRU004
			1ABRU005
		Sg. Dandang	1ABRU006
		Sg. Licin	1ABRU007
		Sg. Rotan	1ABRU002

Jadual 3.1: Senarai Lembangan Sungai dan Sungai-Sungai yang Dipantau mengikut Stesen, 2024
Table 3.1: List of the Catchments and Rivers Monitored by Station, 2024

NEGERI STATE	LEMBANGAN BASIN	SUNGAI RIVER	NOMBOR STESEN STATION NUMBER
Perak	Sg. Bruas	Sg. Rotan	1ABRU003
	Sg. Kerian	Sg. Selama	1AKER011
			1AKER012
			1AKER016
		Sg. Semang	1AKER013
		Sg. Terusan Bagan Serai	1AKER015
	Sg. Kurau	Sg. Air Hitam	1AKRU007
		Sg. Ara	1AKRU001
			1AKRU006
		Sg. Kurau	1AKRU002
			1AKRU003
			1AKRU004
			1AKRU005
	Sg. Perak	Sg. Batang Padang	1APRK003
			1APRK006
			1APRK009
		Sg. Behrang	1APRK077
		Sg. Berok	1APRK068
		Sg. Bidor	1APRK002
			1APRK004
			1APRK005
		Sg. Chenderiang	1APRK012
			1APRK013
		Sg. Chepor	1APRK056
		Sg. Cuar	1APRK046
		Sg. Ibol	1APRK066
		Sg. Kampar	1APRK031
			1APRK032
		Sg. Kangsar	1APRK043
			1APRK044
			1APRK079
		Sg. Kepayang	1APRK037
			1APRK038
		Sg. Kerbau	1APRK064
			1APRK078
		Sg. Kerdah	1APRK041
			1APRK053
		Sg. Kinjang	1APRK055
		Sg. Kinta	1APRK019
			1APRK022
			1APRK024

Jadual 3.1: Senarai Lembangan Sungai dan Sungai-Sungai yang Dipantau mengikut Stesen, 2024
Table 3.1: List of the Catchments and Rivers Monitored by Station, 2024

NEGERI STATE	LEMBANGAN BASIN	SUNGAI RIVER	NOMBOR STESEN STATION NUMBER
Perak	Sg. Perak	Sg. Kinta	1APRK025
			1APRK033
			1APRK034
			1APRK057
			1APRK058
			1APRK063
		Sg. Klah	1APRK014
			1APRK015
		Sg. Klian Baru	1APRK016
			1APRK017
		Sg. Klian Gunong	1APRK081
		Sg. Kuang	1APRK042
		Sg. Manong	1APRK060
		Sg. Nyamok	1APRK052
		Sg. Pari	1APRK023
			1APRK028
		Sg. Pelus	1APRK039
			1APRK040
		Sg. Perak	1APRK001
			1APRK018
			1APRK020
			1APRK045
			1APRK047
			1APRK048
			1APRK049
			1APRK051
			1APRK059
			1APRK065
			1APRK069
			1APRK070
			1APRK071
			1APRK072
			1APRK074
			1APRK080
			1APRK082
			1APRK086
		Sg. Pinji	1APRK021
			1APRK036
		Sg. Pulau	1APRK067
		Sg. Raia	1APRK030

Jadual 3.1: Senarai Lembangan Sungai dan Sungai-Sungai yang Dipantau mengikut Stesen, 2024
Table 3.1: List of the Catchments and Rivers Monitored by Station, 2024

NEGERI STATE	LEMBANGAN BASIN	SUNGAI RIVER	NOMBOR STESEN STATION NUMBER
Perak	Sg. Perak	Sg. Raia	1APRK035
		Sg. Rui	1APRK084
			1APRK085
		Sg. Seluang	1APRK050
		Sg. Serokai	1APRK026
			1APRK027
		Sg. Sintang	1APRK054
		Sg. Sungkai	1APRK007
			1APRK008
			1APRK073
			1APRK075
		Sg. Sungkai Mati	1APRK010
			1APRK011
		Sg. Tapah	1APRK076
		Sg. Teja	1APRK083
		Sg. Tesong	1APRK062
		Sg. Tumboh	1APRK029
		Sg. Woh	1APRK061
	Sg. Raja Hitam	Sg. Derhaka	1ARHT004
			1ARHT006
		Sg. Manjong	1ARHT001
			1ARHT002
		Sg. Nyior	1ARHT007
		Sg. Raja Hitam	1ARHT003
			1ARHT005
			1ARHT008
	Sg. Sepetang	Sg. Batu Tegoh	1ASPT006
			1ASPT007
			1ASPT009
			1ASPT012
			1ASPT016
		Sg. Jana	1ASPT004
			1ASPT013
		Sg. Lidin	1ASPT008
		Sg. Limau	1ASPT014
		Sg. Malai	1ASPT002
			1ASPT019
		Sg. Nyior	1ASPT018
			1ASPT020
		Sg. Sepetang	1ASPT001

Jadual 3.1: Senarai Lembangan Sungai dan Sungai-Sungai yang Dipantau mengikut Stesen, 2024
Table 3.1: List of the Catchments and Rivers Monitored by Station, 2024

NEGERI STATE	LEMBANGAN BASIN	SUNGAI RIVER	NOMBOR STESEN STATION NUMBER
Perak	Sg. Wangi	Sg. Sepetang	1ASPT003
		Sg. Temerloh	1ASPT010
			1ASPT011
		Sg. Trong	1ASPT015
			1ASPT017
		Sg. Deralik	1AWGI001
			1AWGI002
		Sg. Wangi	1AWGI003
			1AWGI004
Selangor	Sg. Bernam	Sg. Bernam	2BBNM013
			2BBNM016
		Sg. Dusun	2BBNM017
	Sg. Buloh	Sg. Buloh	2BBLH001
			2BBLH002
			2BBLH003
			2BBLH004
			2BBLH005
			2BBLH006
	Sg. Klang	Sg. Ampang	2BKLG032
			2BKLG042
		Sg. Anak Air Batu	2BKLG047
		Sg. Batu	2BKLG007
			2BKLG036
		Sg. Damansara	2BKLG008
			2BKLG009
			2BKLG017
			2BKLG055
			2BKLG067
		Sg. Gombak	2BKLG020
			2BKLG027
		Sg. Jinjang	2BKLG044
		Sg. Kerayong	2BKLG013
			2BKLG051
		Sg. Keroh	2BKLG030
		Sg. Klang	2BKLG005
			2BKLG006
			2BKLG016
			2BKLG022
			2BKLG023
			2BKLG024

Jadual 3.1: Senarai Lembangan Sungai dan Sungai-Sungai yang Dipantau mengikut Stesen, 2024
Table 3.1: List of the Catchments and Rivers Monitored by Station, 2024

NEGERI STATE	LEMBANGAN BASIN	SUNGAI RIVER	NOMBOR STESEN STATION NUMBER
Selangor	Sg. Klang	Sg. Klang	2BKLG034
			2BKLG050
		Sg. Kuyoh	2BKLG011
		Sg. Penchala	2BKLG019
			2BKLG054
		Sg. Pusu	2BKLG021
		Sg. Rasau	2BKLG003
		Sg. Rumput	2BKLG033
		Sg. Semelah	2BKLG025
	Sg. Langat	Sg. Anak Chuau	2BCHU004
		Sg. Balak	2BLGT025
		Sg. Batang Labu	2BLGT028
			2BLGT030
			2BLGT031
			2BLGT032
			2BLGT033
			2BLGT035
		Sg. Chuau	2BCHU001
			2BCHU002
		Sg. Langat	2BLGT002
			2BLGT003
			2BLGT004
			2BLGT005
			2BLGT006
			2BLGT007
			2BLGT008
			2BLGT026
			2BLGT027
		Sg. Limau Manis	2BCHU003
		Sg. Rinching	2BLGT014
			2BLGT015
		Sg. Semenyih	2BLGT010
			2BLGT011
			2BLGT012
		Sg. Sering	2BLGT034
	Sg. Selangor	Sg. Air Hitam	2BSEL002
			2BSEL024
		Sg. Batang Kali	2BSEL003
		Sg. Guntong	2BSEL021
		Sg. Kanching	2BSEL007
		Sg. Kerling	2BSEL006

Jadual 3.1: Senarai Lembangan Sungai dan Sungai-Sungai yang Dipantau mengikut Stesen, 2024
Table 3.1: List of the Catchments and Rivers Monitored by Station, 2024

NEGERI STATE	LEMBANGAN BASIN	SUNGAI RIVER	NOMBOR STESEN STATION NUMBER
Selangor	Sg. Selangor	Sg. Kundang	2BSEL012
		Sg. Rangkap	2BSEL016
		Sg. Rawang	2BSEL013
		Sg. Selangor	2BSEL001
			2BSEL004
			2BSEL005
			2BSEL010
			2BSEL011
			2BSEL014
			2BSEL015
			2BSEL017
			2BSEL018
			2BSEL023
		Sg. Sembah	2BSEL009
			2BSEL019
		Sg. Serendah	2BSEL008
		Sg. Sepang	2BSPG001
			2BSPG002
			2BSPG003
	Sg. Tengi	Sg. Tengi	2BTGI001
			2BTGI002
			2BTGI003
			2BTGI004
WP Kuala Lumpur	Sg. Klang	Sg. Air Busuk	2WKLG041
		Sg. Batu	2WKLG028
			2WKLG056
			2WKLG061
		Sg. Belongkong	2WKLG040
		Sg. Bunos	2WKLG006
			2WKLG039
			2WKLG043
		Sg. Gombak	2WKLG018
			2WKLG026
			2WKLG060
		Sg. Jinjang	2WKLG014
			2WKLG031
			2WKLG045
		Sg. Kerayong	2WKLG046
			2WKLG058
		Sg. Keroh	2WKLG015
			2WKLG048

Jadual 3.1: Senarai Lembangan Sungai dan Sungai-Sungai yang Dipantau mengikut Stesen, 2024
Table 3.1: List of the Catchments and Rivers Monitored by Station, 2024

NEGERI STATE	LEMBANGAN BASIN	SUNGAI RIVER	NOMBOR STESEN STATION NUMBER
WP Kuala Lumpur	Sg. Klang	Sg. Klang	2WKLG001
			2WKLG002
			2WKLG003
			2WKLG004
			2WKLG049
		Sg. Kuyoh	2WKLG052
		Sg. Penchala	2WKLG010
		Sg. Toba	2WKLG037
		Sg. Untut	2WKLG038
Negeri Sembilan	Sg. Langat	Sg. Batang Benar	3NLGT013
		Sg. Batang Labu	3NLGT009
			3NLGT025
		Sg. Batang Nilai	3NLGT023
			3NLGT024
		Sg. Beranang	3NLGT019
		Sg. Buan	3NLGT022
		Sg. Jijan	3NLGT026
		Sg. Pajam	3NLGT020
			3NLGT021
	Sg. Linggi	Sg. Batang Penar	3NLGI009
			3NLGI010
			3NLGI020
			3NLGI021
			3NLGI027
			3NLGI034
		Sg. Batu Hampar	3NLGI024
		Sg. Chembong	3NLGI012
		Sg. Empangan Terip	3NLGI022
		Sg. Jelai	3NLGI025
		Sg. Kayu Ara	3NLGI016
		Sg. Kenaboi	3NLGI032
		Sg. Kepayong	3NLGI007
			3NLGI023
		Sg. Kundur Besar	3NLGI013
		Sg. Linggi	3NLGI001
			3NLGI002
			3NLGI003
			3NLGI004
			3NLGI005
			3NLGI006
		Sg. Muar	3NLGI026

Jadual 3.1: Senarai Lembangan Sungai dan Sungai-Sungai yang Dipantau mengikut Stesen, 2024
Table 3.1: List of the Catchments and Rivers Monitored by Station, 2024

NEGERI STATE	LEMBANGAN BASIN	SUNGAI RIVER	NOMBOR STESEN STATION NUMBER
Negeri Sembilan	Sg. Linggi	Sg. Ngoi Ngoi	3NLGI040
		Sg. Paroi	3NLGI018
		Sg. Pedas	3NLGI014
		Sg. Rembau	3NLGI011
		Sg. Senawang	3NLGI017
		Sg. Simin	3NLGI015
		Sg. Temiang	3NLGI019
			3NLGI033
	Sg. Lukut	Sg. Lukut	3NLKT001
	Sg. Melaka	Sg. Dusun	3NMLK017
		Sg. Kemunting	3NMLK039
		Sg. Tampin	3NMLK038
			3NMLK041
	Sg. Muar	Sg. Gemas	3NMUA041
		Sg. Gemencheh	3NMUA043
			3NMUA045
		Sg. Jelai	3NMUA054
		Sg. Kelamah	3NMUA044
		Sg. Muar	3NMUA042
			3NMUA046
			3NMUA047
			3NMUA048
			3NMUA049
			3NMUA050
			3NMUA051
			3NMUA052
			3NMUA053
			3NMUA055
	Sg. Pahang	Sg. Pertang	3NPHG002
		Sg. Serting	3NPHG003
			3NPHG004
			3NPHG005
		Sg. Triang	3NPHG006
	Sg Sepang	Sg. Rambai	2BSPG004
Melaka	Sg. Baru	Sg. Baru	3MBAR001
	Sg. Duyong	Sg. Duyong	3MDYG001
			3MDYG002
			3MDYG003
		Sg. Gapam	3MDYG004
		Sg. Punggur	3MPGR001
			3MPGR002

Jadual 3.1: Senarai Lembangan Sungai dan Sungai-Sungai yang Dipantau mengikut Stesen, 2024
Table 3.1: List of the Catchments and Rivers Monitored by Station, 2024

NEGERI STATE	LEMBANGAN BASIN	SUNGAI RIVER	NOMBOR STESEN STATION NUMBER
Melaka	Sg. Kesang	Sg. Chin-Chin	3MKSG006
			3MKSG008
			3MKSG009
		Sg. Chohong	3MKSG004
			3MKSG005
		Sg. Kesang	3MKSG001
			3MKSG002
			3MKSG003
		Sg. Tangkak	3MKSG007
	Sg. Linggi	Sg. Simpang Ampat	3MLGI029
		Sg. Siput	3MLGI030
			3MLGI031
		Sg. Tuang	3MTUG002
	Sg. Melaka	Sg. Batang Melaka	3MMLK008
			3MMLK027
			3MMLK028
		Sg. Durian Tunggal	3MMLK011
		Sg. Malim	3MMLK014
			3MMLK034
		Sg. Melaka	3MMLK007
			3MMLK009
			3MMLK010
			3MMLK012
			3MMLK013
			3MMLK015
			3MMLK021
			3MMLK022
			3MMLK023
			3MMLK024
			3MMLK025
			3MMLK026
			3MMLK030
			3MMLK032
		Sg. Putat	3MMLK029
			3MMLK033
		Sg. Rembia	3MMLK035
			3MMLK036
		Sg. Tampin	3MMLK031
	Sg. Merlimau	Sg. Merlimau	3MMLU001
			3MMLU002
			3MMLU003

Jadual 3.1: Senarai Lembangan Sungai dan Sungai-Sungai yang Dipantau mengikut Stesen, 2024
Table 3.1: List of the Catchments and Rivers Monitored by Station, 2024

NEGERI STATE	LEMBANGAN BASIN	SUNGAI RIVER	NOMBOR STESEN STATION NUMBER
Melaka	Sg. Merlimau	Sg. Merlimau	3MMLU004
			3MMLU005
	Sg. Seri Melaka	Sg. Air Salak	3MSMK001
		Sg. Seri Melaka	3MSMK002
		Sg. Sg.Udang	3MSUD001
	Sg. Tuang	Sg. Tuang	3MTUG001
Johor	Sg. Air Baloi	Sg. Air Baloi	3JABL001
			3JABL002
			3JABL003
	Sg. Batu Pahat	Sg. Amran	3JBPT018
		Sg. Bantang	3JBPT020
		Sg. Batu Pahat	3JBPT001
		Sg. Bekok	3JBPT005
			3JBPT008
			3JBPT016
			3JBPT017
			3JBPT019
			3JBPT023
		Sg. Berlian	3JBPT007
		Sg. Chaah	3JBPT010
		Sg. Kahang	3JBPT022
		Sg. Lenik	3JBPT011
		Sg. Merek	3JBPT009
		Sg. Merpo	3JBPT006
		Sg. Panchor	3JBPT025
		Sg. Semberong	3JBPT003
			3JBPT004
		Sg. Semberong Dam	3JBPT021
		Sg. Simpang Kanan	3JBPT002
			3JBPT013
		Sg. Simpang Kiri	3JBPT012
			3JBPT014
			3JBPT015
		Sg. Temehel	3JBPT024
	Sg. Benut	Sg. Benut	3JBNT001
			3JBNT002
			3JBNT005
			3JBNT006
		Sg. Machap Dam	3JBNT008
		Sg. Parit Hj.Yassin	3JBNT004

Jadual 3.1: Senarai Lembangan Sungai dan Sungai-Sungai yang Dipantau mengikut Stesen, 2024
Table3.1: List of the Catchments and Rivers Monitored by Station, 2024

NEGERI STATE	LEMBANGAN BASIN	SUNGAI RIVER	NOMBOR STESEN STATION NUMBER
Johor	Sg. Benut	Sg. Pinggan	3JBNT007
		Sg. Ulu Benut	3JBNT003
	Sg. Danga	Sg. Danga	3JDGA001
			3JDGA002
	Sg. Endau	Sg. Anak Sg. Semberong	3JEND007
		Sg. Dengar	3JEND010
		Sg. Empangan Labong	3JEND027
		Sg. Endau	3JEND019
			3JEND022
			3JEND023
		Sg. Jasin	3JEND024
		Sg. Jebong	3JEND005
		Sg. Kahang	3JEND020
			3JEND026
			3JEND028
		Sg. Lenga	3JEND008
		Sg. Lenggor	3JEND009
			3JEND029
		Sg. Mamai	3JEND015
		Sg. Melatai	3JEND017
		Sg. Mengkibol	3JEND001
			3JEND002
			3JEND003
		Sg. Paloh	3JEND016
		Sg. Pamol	3JEND011
		Sg. Selai	3JEND025
		Sg. Semberong	3JEND004
			3JEND006
			3JEND012
			3JEND018
			3JEND021
		Sg. Singol	3JEND013
		Sg. Tamok	3JEND014
	Sg. Jemaluang	Sg. Jemaluang	3JJML001
			3JJML002
	Sg. Johor	Sg. Anak Sg. Sayong	3JJHR023
			3JJHR032
		Sg. Belitong	3JJHR038
		Sg. Berangan	3JJHR013
		Sg. Bukit Besar	3JJHR007

Jadual 3.1: Senarai Lembangan Sungai dan Sungai-Sungai yang Dipantau mengikut Stesen, 2024
Table 3.1: List of the Catchments and Rivers Monitored by Station, 2024

NEGERI STATE	LEMBANGAN BASIN	SUNGAI RIVER	NOMBOR STESEN STATION NUMBER
Johor	Sg. Johor	Sg. Bukit Besar	3JJHR009
		Sg. Chemangar	3JJHR019
		Sg. Johor	3JJHR011
			3JJHR014
			3JJHR015
			3JJHR040
			3JJHR041
			3JJHR042
		Sg. Layang	3JJHR001
		Sg. Layau Kiri	3JJHR017
		Sg. Lebam	3JJHR020
		Sg. Linggiu	3JJHR030
		Sg. Panti	3JJHR037
		Sg. Papan	3JJHR034
		Sg. Pelepah	3JJHR039
			3JJHR043
			3JJHR044
			3JJHR045
		Sg. Penggeli	3JJHR028
			3JJHR031
		Sg. Remis	3JJHR026
		Sg. Santi	3JJHR022
		Sg. Sayong	3JJHR024
			3JJHR025
			3JJHR027
			3JJHR033
		Sg. Sebol	3JJHR029
		Sg. Seluyut	3JJHR035
		Sg. Semangar	3JJHR008
		Sg. Semenchu	3JJHR018
		Sg. Sening	3JJHR021
		Sg. Serai	3JJHR002
		Sg. Telor	3JJHR012
		Sg. Temoh	3JJHR016
		Sg. Tiram	3JJHR003
			3JJHR004
			3JJHR005
			3JJHR006
	Sg. Kaw. Pasir Gudang	Sg. Buluh	3JPGD002
		Sg. Latoh	3JPGD004

Jadual 3.1: Senarai Lembangan Sungai dan Sungai-Sungai yang Dipantau mengikut Stesen, 2024
Table 3.1: List of the Catchments and Rivers Monitored by Station, 2024

NEGERI STATE	LEMBANGAN BASIN	SUNGAI RIVER	NOMBOR STESEN STATION NUMBER
Johor	Sg. Kaw. Pasir Gudang	Sg. Masai	3JPGD005
		Sg. Perembi	3JPGD001
		Sg. Tukang Batu	3JPGD003
	Sg. Kempas	Sg. Kempas	3JKPS001
			3JKPS002
	Sg. Kim-Kim	Sg. Kim-Kim	3JKIM001
			3JKIM002
	Sg. Mersing	Sg. Empangan Congok	3JMSG004
		Sg. Mersing	3JMSG001
			3JMSG002
			3JMSG003
	Sg. Muar	Sg. Air Panas	3JMUA035
		Sg. Belemang	3JMUA051
		Sg. Gemas	3JMUA036
		Sg. Jementah	3JMUA040
		Sg. Juasseh	3JMUA014
			3JMUA037
			3JMUA045
		Sg. Labis	3JMUA011
			3JMUA012
			3JMUA015
		Sg. Meda	3JMUA034
		Sg. Merbudu	3JMUA030
		Sg. Merlimau	3JMUA020
		Sg. Muar	3JMUA017
			3JMUA019
			3JMUA022
			3JMUA026
			3JMUA027
			3JMUA028
			3JMUA029
			3JMUA031
			3JMUA033
			3JMUA039
			3JMUA041
			3JMUA042
			3JMUA043
			3JMUA046
			3JMUA047
		Sg. P.Mengkuang	3JMUA018

Jadual 3.1: Senarai Lembangan Sungai dan Sungai-Sungai yang Dipantau mengikut Stesen, 2024
Table 3.1: List of the Catchments and Rivers Monitored by Station, 2024

NEGERI STATE	LEMBANGAN BASIN	SUNGAI RIVER	NOMBOR STESEN STATION NUMBER
Johor	Sg. Muar	Sg. Pagoh	3JMUA049
		Sg. Palong	3JMUA024
			3JMUA025
		Sg. Pendol	3JMUA050
		Sg. Sarang Buaya	3JMUA038
		Sg. Segamat	3JMUA016
			3JMUA044
			3JMUA048
		Sg. Senarut	3JMUA021
		Sg. Serom	3JMUA032
		Sg. Simpang Loi	3JMUA023
		Sg. Tenang	3JMUA013
	Sg. Paloi	Sg. Paloi	3JPAL001
	Sg. Pontian Besar	Sg. Air Hitam	3JPBS001
		Sg. Ayer Merah	3JPBS005
		Sg. Pontian Besar	3JPBS002
			3JPBS003
			3JPBS004
			3JPBS006
			3JPBS007
	Sg. Pontian Kecil	Sg. Pontian Kecil	3JPKC001
			3JPKC002
	Sg. Pulai	Sg. Pulai	3JPLI001
			3JPLI002
		Sg. Pulai Dam	3JPLI004
		Sg. Ulu Choh	3JPLI003
	Sg. Rambah	Sg. Rambah	3JRBH001
			3JRBH002
	Sg. Sanglang	Sg. Sanglang	3JSLG001
	Sg. Sedili Besar	Sg. Ambat	3JSBE005
		Sg. Dohol	3JSBE001
		Sg. Mupur	3JSBE009
		Sg. Pasir Panjang	3JSBE010
		Sg. Sedili Besar	3JSBE002
			3JSBE004
			3JSBE006
			3JSBE007
			3JSBE008
			3JSBE011
		Sg. Temubor Kanan	3JSBE003
	Sg. Sedili Kecil	Sg. Anak Sedili Kecil	3JSKE005

Jadual 3.1: Senarai Lembangan Sungai dan Sungai-Sungai yang Dipantau mengikut Stesen, 2024
Table 3.1: List of the Catchments and Rivers Monitored by Station, 2024

NEGERI STATE	LEMBANGAN BASIN	SUNGAI RIVER	NOMBOR STESEN STATION NUMBER
Johor	Sg. Sedili Kecil	Sg. Anak Sedili Kecil	3JSKE006
		Sg. Bahan	3JSKE002
			3JSKE004
		Sg. Sedili Kecil	3JSKE001
			3JSKE003
	Sg. Segget	Sg. Segget	3JSGT001
			3JSGT002
			3JSGT003
			3JSGT004
			3JSGT005
	Sg. Skudai	Sg. Melana	3JSKU008
			3JSKU009
		Sg. Skudai	3JSKU001
			3JSKU002
			3JSKU003
			3JSKU004
			3JSKU005
			3JSKU006
			3JSKU007
			3JSKU010
			3JSKU011
	Sg. Tebrau	Sg. Bala	3JTRU008
		Sg. Pandan	3JTRU007
		Sg. Plentong	3JTRU004
		Sg. Sebulung	3JTRU009
		Sg. Sengkuang	3JTRU011
		Sg. Tampoi	3JTRU010
		Sg. Tebrau	3JTRU001
			3JTRU002
			3JTRU003
			3JTRU005
			3JTRU006
Pahang	Sg. Anak Endau	Sg. Anak Endau	4CAED001
			4CAED002
	Sg. Balok	Sg. Balok	4CBLK001
			4CBLK002
		Sg. Panjang	4CBLK004
		Sg. Yior	4CBLK003
	Sg. Bebar	Sg. Bebar	4CBBR001
			4CBBR002
		Sg. Merba	4CBBR005

Jadual 3.1: Senarai Lembangan Sungai dan Sungai-Sungai yang Dipantau mengikut Stesen, 2024
Table 3.1: List of the Catchments and Rivers Monitored by Station, 2024

NEGERI STATE	LEMBANGAN BASIN	SUNGAI RIVER	NOMBOR STESEN STATION NUMBER
Pahang	Sg. Bebar	Sg. Serai	4CBBR003
			4CBBR004
	Sg. Cherating	Sg. Cherating	4CCHE001
	Sg. Kuantan	Sg. Belat	4CKTN001
		Sg. Charu	4CKTN006
		Sg. Galing Besar	4CKTN003
			4CKTN004
		Sg. Kenau	4CKTN010
		Sg. Kuantan	4CKTN002
			4CKTN015
			4CKTN016
			4CKTN017
			4CKTN018
			4CKTN019
			4CKTN020
			4CKTN021
		Sg. Pandan	4CKTN012
		Sg. Pinang	4CKTN005
		Sg. Reman	4CKTN014
		Sg. Riau	4CKTN007
		Sg. Talam	4CKTN013
	Sg. Merchong	Sg. Merchong	4CMCO002
			4CMCO003
	Sg. Pahang	Sg. Anak Sg. Lepar	4CPHG136
		Sg. Batu	4CPHG056
		Sg. Belayar	4CPHG135
		Sg. Bentong	4CPHG040
			4CPHG045
			4CPHG092
			4CPHG133
			4CPHG134
			4CPHG144
		Sg. Benus	4CPHG047
			4CPHG118
			4CPHG152
		Sg. Bera	4CPHG019
			4CPHG020
			4CPHG058
			4CPHG059
			4CPHG063

Jadual 3.1: Senarai Lembangan Sungai dan Sungai-Sungai yang Dipantau mengikut Stesen, 2024
Table 3.1: List of the Catchments and Rivers Monitored by Station, 2024

NEGERI STATE	LEMBANGAN BASIN	SUNGAI RIVER	NOMBOR STESEN STATION NUMBER
Pahang	Sg. Pahang	Sg. Berkelah	4CPHG098
		Sg. Bertam	4CBTM002
			4CBTM010
			4CBTM011
			4CBTM013
		Sg. Bilut	4CPHG119
			4CPHG129
		Sg. Burung	4CBTM005
		Sg. Chini	4CPHG004
		Sg. Gapoi	4CPHG086
		Sg. Habu	4CBTM004
		Sg. Jelai	4CPHG0130
			4CPHG096
			4CPHG125
		Sg. Jempol	4CPHG049
			4CPHG050
			4CPHG087
			4CPHG088
			4CPHG121
		Sg. Jengka	4CPHG041
			4CPHG051
		Sg. Kecau	4CPHG091
			4CPHG116
			4CPHG151
		Sg. Kelau	4CPHG117
			4CPHG145
			4CPHG146
			4CPHG153
		Sg. Kertam	4CPHG014
		Sg. Koyan	4CPHG033
		Sg. Krau	4CPHG003
		Sg. Kundang	4CPHG018
		Sg. Lenggok	4CBTM003
		Sg. Lepar	4CPHG006
		Sg. Lipis	4CPHG029
			4CPHG030
			4CPHG035
		Sg. Luit	4CPHG015
		Sg. Maran	4CPHG016
		Sg. Mentiga	4CPHG005

Jadual 3.1: Senarai Lembangan Sungai dan Sungai-Sungai yang Dipantau mengikut Stesen, 2024
Table3.1: List of the Catchments and Rivers Monitored by Station, 2024

NEGERI STATE	LEMBANGAN BASIN	SUNGAI RIVER	NOMBOR STESEN STATION NUMBER
Pahang	Sg. Pahang	Sg. Mentiga	4CPHG042
			4CPHG089
		Sg. Pahang	4CPHG007
			4CPHG008
			4CPHG010
			4CPHG011
			4CPHG012
			4CPHG013
			4CPHG021
			4CPHG022
			4CPHG023
			4CPHG027
			4CPHG054
			4CPHG055
			4CPHG097
			4CPHG100
			4CPHG104
			4CPHG111
			4CPHG113
			4CPHG124
			4CPHG126
			4CPHG127
			4CPHG131
			4CPHG137
			4CPHG138
			4CPHG139
			4CPHG141
			4CPHG148
			4CPHG150
		Sg. Penjuring	4CPHG044
		Sg. Pertang	4CPHG132
		Sg. Perting	4CPHG120
		Sg. Raub	4CPHG123
		Sg. Retang	4CPHG105
		Sg. Ringlet	4CBTM001
		Sg. Salak	4CPHG122
		Sg. Semantan	4CPHG025
			4CPHG036
			4CPHG061
			4CPHG084

Jadual 3.1: Senarai Lembangan Sungai dan Sungai-Sungai yang Dipantau mengikut Stesen, 2024
Table 3.1: List of the Catchments and Rivers Monitored by Station, 2024

NEGERI STATE	LEMBANGAN BASIN	SUNGAI RIVER	NOMBOR STESEN STATION NUMBER
Pahang	Sg. Pahang	Sg. Serting	4CPHG101
			4CPHG102
		Sg. T. Paya Bungor	4CPHG002
		Sg. Tahan	4CPHG109
		Sg. Tanglir	4CPHG048
			4CPHG053
			4CPHG057
			4CPHG106
			4CPHG107
		Sg. Tasik Bera	4CPHG140
		Sg. Tasik Chini	4CPHG043
			4CPHG060
			4CPHG071
			4CPHG108
			4CPHG110
			4CPHG112
			4CPHG114
			4CPHG115
			4CPHG130
			4CPHG143
		Sg. Teh	4CPHG090
		Sg. Tekal	4CPHG062
		Sg. Telang	4CPHG032
		Sg. Telemong	4CPHG046
			4CPHG093
			4CPHG094
		Sg. Telom	4CBTM008
			4CBTM009
		Sg. Tembeling	4CPHG142
		Sg. Teranum	4CPHG038
		Sg. Teras	4CPHG037
			4CPHG147
		Sg. Teris	4CPHG081
			4CPHG082
			4CPHG083
		Sg. Terla	4CBTM007
			4CBTM012
		Sg. Triang	4CPHG024
			4CPHG074
		Sg. Tringkap	4CBTM006

Jadual 3.1: Senarai Lembangan Sungai dan Sungai-Sungai yang Dipantau mengikut Stesen, 2024
Table 3.1: List of the Catchments and Rivers Monitored by Station, 2024

NEGERI STATE	LEMBANGAN BASIN	SUNGAI RIVER	NOMBOR STESEN STATION NUMBER
Pahang	Sg. Pahang	Sg. Ulong	4CBTM014
	Sg. Rompin	Sg. Aur	4CRPN005
		Sg. Bakar	4CRPN016
		Sg. Jekatih	4CRPN012
			4CRPN013
		Sg. Jeram	4CRPN006
		Sg. Kepasing	4CRPN010
		Sg. Keratong	4CRPN011
			4CRPN018
			4CRPN021
			4CRPN022
		Sg. Pontian	4CRPN003
		Sg. Pukin	4CRPN014
			4CRPN015
			4CRPN017
		Sg. Rompin	4CRPN004
			4CRPN007
			4CRPN008
			4CRPN020
			4CRPN030
		Sg. Sepayang	4CRPN002
	Sg. Tonggok	Sg. Tonggok	4CTGK001
			4CTGK002
Terengganu	Sg. Besut	Sg. Besut	4TBST002
			4TBST003
			4TBST004
			4TBST005
			4TBST006
		Sg. Jertih	4TBST001
	Sg. Chukai	Sg. Bungkus	4TCKI006
		Sg. Chukai	4TCKI003
		Sg. Ibok	4TCKI001
			4TCKI002
		Sg. Ruang	4TCKI004
			4TCKI005
	Sg. Dungun	Sg. Dungun	4TDGN002
			4TDGN003
			4TDGN004
			4TDGN005
			4TDGN006

Jadual 3.1: Senarai Lembangan Sungai dan Sungai-Sungai yang Dipantau mengikut Stesen, 2024
Table 3.1: List of the Catchments and Rivers Monitored by Station, 2024

NEGERI STATE	LEMBANGAN BASIN	SUNGAI RIVER	NOMBOR STESEN STATION NUMBER
Terengganu	Sg. Dungun	Sg. Telemboh	4TDGN001
	Sg. Ibai	Sg. Ibai	4TIBI001
			4TIBI002
			4TIBI003
	Sg. Kemaman	Sg. Cherul	4TKMM003
			4TKMM004
			4TKMM010
		Sg. Kemaman	4TKMM007
			4TKMM008
			4TKMM009
		Sg. Neram	4TKMM005
		Sg. Perasing	4TKMM006
		Sg. Ransan	4TKMM001
			4TKMM002
	Sg. Kertih	Sg. Kertih	4TKTH001
			4TKTH002
	Sg. Kluang	Sg. Kluang	4TKLU005
	Sg. Marang	Sg. Kerak	4TMRG001
		Sg. Marang	4TMRG002
		Sg. Temala	4TMRG003
	Sg. Merang	Sg. Merang	4TMER001
	Sg. Merchang	Sg. Landas	4TMCA001
		Sg. Merchang	4TMCA002
	Sg. Paka	Sg. Besul	4TPKA001
		Sg. Paka	4TPKA005
			4TPKA006
			4TPKA007
		Sg. Rasau	4TPKA003
			4TPKA004
		Sg. Rengat	4TPKA002
	Sg. Setiu	Sg. Bari	4TSTU002
		Sg. Chalok	4TSTU001
			4TSTU005
			4TSTU006
		Sg. Setiu	4TSTU004
			4TSTU007
		Sg. Tarom	4TSTU003
	Sg. Terengganu	Sg. Berang	4TTGG002
			4TTGG011
		Sg. Nerus	4TTGG004

Jadual 3.1: Senarai Lembangan Sungai dan Sungai-Sungai yang Dipantau mengikut Stesen, 2024
Table 3.1: List of the Catchments and Rivers Monitored by Station, 2024

NEGERI STATE	LEMBANGAN BASIN	SUNGAI RIVER	NOMBOR STESEN STATION NUMBER
Terengganu	Sg. Terengganu	Sg. Nerus	4TTGG005
			4TTGG006
			4TTGG010
			4TTGG014
			4TTGG015
		Sg. Pueh	4TTGG007
			4TTGG008
		Sg. Telemong	4TTGG012
		Sg. Terengganu	4TTGG001
			4TTGG003
			4TTGG009
			4TTGG013
Kelantan	Sg. Golok	Sg. Golok	4DGLK002
			4DGLK003
			4DGLK004
			4DGLK005
			4DGLK006
		Sg. Jedok	4DGLK008
		Sg. Lanas	4DGLK007
		Sg. Tasik Garu	4DGLK001
	Sg. Kelantan	Sg. Aring	4DKLT013
		Sg. Belatop	4DKLT020
			4DKLT021
			4DKLT046
		Sg. Ber	4DKLT018
		Sg. Berok	4DKLT016
			4DKLT019
			4DKLT022
		Sg. Betis	4DKLT017
		Sg. Chiku	4DKLT037
			4DKLT043
		Sg. Galas	4DKLT014
			4DKLT031
			4DKLT032
			4DKLT033
			4DKLT034
		Sg. Isos	4DKLT049
		Sg. Kelantan	4DKLT001
			4DKLT006
			4DKLT010

Jadual 3.1: Senarai Lembangan Sungai dan Sungai-Sungai yang Dipantau mengikut Stesen, 2024
Table 3.1: List of the Catchments and Rivers Monitored by Station, 2024

NEGERI STATE	LEMBANGAN BASIN	SUNGAI RIVER	NOMBOR STESEN STATION NUMBER
Kelantan	Sg. Kelantan	Sg. Kelantan	4DKLT045
			4DKLT054
			4DKLT055
			4DKLT056
		Sg. Kelesa	4DKLT015
		Sg. Kenkren	4DKLT047
		Sg. Kerilla	4DKLT002
			4DKLT003
		Sg. Ketil	4DKLT036
			4DKLT053
		Sg. Lebir	4DKLT026
			4DKLT027
			4DKLT028
			4DKLT029
			4DKLT058
		Sg. Muring	4DKLT059
		Sg. Nal	4DKLT007
			4DKLT008
			4DKLT009
		Sg. Nenggiri	4DKLT023
			4DKLT024
			4DKLT025
		Sg. Pehi	4DKLT011
			4DKLT044
		Sg. Pelaur	4DKLT048
		Sg. Penangau	4DKLT050
		Sg. Pergau	4DKLT004
			4DKLT005
			4DKLT038
			4DKLT039
			4DKLT040
			4DKLT041
			4DKLT051
			4DKLT052
		Sg. Rasau	4DKLT061
		Sg. Relai	4DKLT012
			4DKLT030
		Sg. Sokor	4DKLT042
		Sg. Tuang	4DKLT035
	Sg. Kemasin	Sg. Gali	4DKMS006

Jadual 3.1: Senarai Lembangan Sungai dan Sungai-Sungai yang Dipantau mengikut Stesen, 2024
Table 3.1: List of the Catchments and Rivers Monitored by Station, 2024

NEGERI STATE	LEMBANGAN BASIN	SUNGAI RIVER	NOMBOR STESEN STATION NUMBER
Kelantan	Sg. Kemasin	Sg. Kemasin	4DKMS001
			4DKMS003
		Sg. Semerak	4DKMS002
			4DKMS004
			4DKMS005
	Sg. Pengkalan Chepa	Sg. Alor B	4DPCH003
		Sg. Alor Lintah	4DPCH004
		Sg. Keladi	4DPCH002
		Sg. Pengkalan Chepa	4DPCH005
			4DPCH006
		Sg. Raja Gali	4DPCH001
	Sg. Pengkalan Datu	Sg. Pasir Hor	4DPDT004
		Sg. Pengkalan Datu	4DPDT001
			4DPDT002
			4DPDT003
Sarawak	Sg. Balingian	Sg. Balingian	6QBLG001
			6QBLG002
	Sg. Baram	Sg. Baram	6QBRM001
			6QBRM002
			6QBRM003
			6QBRM004
		Sg. Tutuh	6QBRM005
	Sg. Kayan	Sg. Kayan	6QKYN001
			6QKYN002
			6QKYN003
	Sg. Kemena	Sg. Kemena	6QKMN001
			6QKMN002
			6QKMN003
			6QKMN004
		Sg. Sibiu	6QKMN005
	Sg. Kerian	Sg. Kerian	6QKRN014
			6QKRN015
		Sg. Seblak	6QKRN016
		Sg. Selalang	6QKRN017
	Sg. Lawas	Sg. Lawas	6QLWS001
			6QLWS002
			6QLWS003
	Sg. Limbang	Sg. Limbang	6QLBG001
			6QLBG002
			6QLBG003

Jadual 3.1: Senarai Lembangan Sungai dan Sungai-Sungai yang Dipantau mengikut Stesen, 2024
Table 3.1: List of the Catchments and Rivers Monitored by Station, 2024

NEGERI STATE	LEMBANGAN BASIN	SUNGAI RIVER	NOMBOR STESEN STATION NUMBER
Sarawak	Sg. Limbang	Sg. Limbang	6QLBG004
			6QLBG005
	Sg. Lupar	Sg. Ai	6QLPR001
			6QLPR002
		Sg. Lupar	6QLPR003
			6QLPR004
			6QLPR005
		Sg. Sekerang	6QLPR006
		Sg. Seterap	6QLPR007
		Sg. Undup	6QLPR008
	Sg. Miri	Sg. Adong	6QMRI001
		Sg. Dalam	6QMRI002
		Sg. Lutong	6QMRI003
			6QMRI004
		Sg. Miri	6QMRI005
			6QMRI006
		Sg. Padang Liku	6QMRI007
	Sg. Mukah	Sg. Mukah	6QMKH001
			6QMKH002
			6QMKH003
			6QMKH004
			6QMKH005
	Sg. Niah	Sg. Niah	6QNIA001
			6QNIA002
		Sg. Sekaloh	6QNIA003
			6QNIA004
	Sg. Oya	Sg. Oya	6QOYA001
			6QOYA002
			6QOYA003
	Sg. Rajang	Sg. Baloi	6QRJG019
		Sg. Binatang	6QRJG004
		Sg. Daro	6QRJG021
		Sg. Jemoreng	6QRJG022
		Sg. Julau	6QRJG005
		Sg. Kanowit	6QRJG006
		Sg. Meradong	6QRJG003
		Sg. Pakan	6QRJG020
		Sg. Pila Parit	6QRJG023
		Sg. Rajang	6QRJG008
			6QRJG009
			6QRJG010

Jadual 3.1: Senarai Lembangan Sungai dan Sungai-Sungai yang Dipantau mengikut Stesen, 2024
Table 3.1: List of the Catchments and Rivers Monitored by Station, 2024

NEGERI STATE	LEMBANGAN BASIN	SUNGAI RIVER	NOMBOR STESEN STATION NUMBER
Sarawak	Sg. Rajang	Sg. Rajang	6QRJG011
			6QRJG012
			6QRJG013
			6QRJG014
			6QRJG015
			6QRJG016
			6QRJG017
			6QRJG018
		Sg. Salim	6QRJG007
		Sg. Sarikei	6QRJG001
			6QRJG002
	Sg. Sadong	Sg. Karangan	6QSDG001
			6QSDG002
		Sg. Sadong	6QSDG003
			6QSDG004
			6QSDG005
			6QSDG006
		Sg. Tarat	6QSDG007
	Sg. Sarawak	Sg. Kelantan	6QSWK017
		Sg. Kuap	6QSWK009
			6QSWK010
		Sg. Maong Kiri	6QSWK011
		Sg. Samarahan	6QSWK013
			6QSWK014
		Sg. Sarawak	6QSWK001
			6QSWK003
			6QSWK004
			6QSWK006
			6QSWK007
			6QSWK008
		Sg. Sarawak Kanan	6QSWK002
		Sg. Sarawak Kiri	6QSWK005
		Sg. Semadang	6QSWK016
		Sg. Semenggoh	6QSWK012
		Sg. Tabuan	6QSWK015
		Sg. Tapah	6QSWK018
	Sg. Saribas	Sg. Layar	6QSRB002
			6QSRB003
		Sg. Saribas	6QSRB001
	Sg. Semunsam	Sg. Semunsam	6QSMS001

Jadual 3.1: Senarai Lembangan Sungai dan Sungai-Sungai yang Dipantau mengikut Stesen, 2024
Table 3.1: List of the Catchments and Rivers Monitored by Station, 2024

NEGERI STATE	LEMBANGAN BASIN	SUNGAI RIVER	NOMBOR STESEN STATION NUMBER
Sabah	Sg. Sibuti	Sg. Kabuloh	6QSBT001
			6QSBT002
		Sg. Kejapil	6QSBT003
		Sg. Satap	6QSBT004
		Sg. Sibuti	6QSBT005
			6QSBT006
	Sg. Similajau	Sg. Similajau	6QSML001
			6QSML002
	Sg. Suai	Sg. Suai	6QSUA001
	Sg. Tatau	Sg. Tatau	6QTTU001
	Sg. Trusan	Sg. Trusan	6QTSN001
	Sg. Apas	Sg. Apas	5SAPS001
	Sg. Balung	Sg. Balung	5SBLU001
	Sg. Bengkoka	Sg. Bengkoka	5SBKK001
			5SBKK002
	Sg. Bingkongan	Sg. Bandau	5SBKG001
		Sg. Bingkongan	5SBKG005
			5SBKG006
		Sg. Menggaris	5SBKG002
			5SBKG003
		Sg. Tandek	5SBKG004
	Sg. Bongawan	Sg. Bongawan	5SBGW001
	Sg. Brantian	Sg. Brantian	5SBTN001
	Sg. Kalabakan	Sg. Kalabakan	5SKBK001
			5SKBK002
			5SKBK003
	Sg. Kalumpang	Sg. Kalumpang	5SKLP001
			5SKLP002
			5SKLP003
		Sg. Pang Burong 1	5SKLP004
		Sg. Pang Burong 2	5SKLP005
	Sg. Kedamaian	Sg. Kedamaian	5SKDI004
		Sg. Tempasuk	5SKDI001
			5SKDI002
		Sg. Wariu	5SKDI003
	Sg. Kimanis	Sg. Kimanis	5SKMA001
	Sg. Kinabatangan	Sg. Karamuak	5SKBT006
		Sg. Kinabatangan	5SKBT001
			5SKBT002
			5SKBT004

Jadual 3.1: Senarai Lembangan Sungai dan Sungai-Sungai yang Dipantau mengikut Stesen, 2024
Table 3.1: List of the Catchments and Rivers Monitored by Station, 2024

NEGERI STATE	LEMBANGAN BASIN	SUNGAI RIVER	NOMBOR STESEN STATION NUMBER
Sabah	Sg. Kinabatangan	Sg. Kinabatangan	5SKBT005
		Sg. Koyah	5SKBT003
		Sg. Leepang	5SKBT009
		Sg. Menanggul	5SKBT008
		Sg. Pin	5SKBT010
		Sg. Takala	5SKBT007
	Sg. Labok	Sg. Kinipir	5SLBK001
			5SLBK002
		Sg. Labok	5SLBK006
		Sg. Liwagu	5SLBK003
			5SLBK004
		Sg. Maliau	5SLBK005
		Sg. Tungud	5SLBK007
	Sg. Lakutan	Sg. Lakutan	5SLKT001
	Sg. Likas	Sg. Darau	5SLKS008
		Sg. Inanam	5SLKS001
			5SLKS002
			5SLKS003
		Sg. Likas	5SLKS004
			5SLKS005
		Sg. Menggatal	5SLKS006
			5SLKS007
	Sg. Lingkungan	Sg. Bukau	5SLKG002
		Sg. Lingkungan	5SLKG001
	Sg. Membakut	Sg. Membakut	5SMBT001
	Sg. Menggalong	Sg. Menggalong	5SMGL001
			5SMGL002
	Sg. Merotai	Sg. Merotai	5SMRT001
			5SMRT002
			5SMRT003
	Sg. Mounad	Sg. Mounad	5SMND001
			5SMND002
	Sg. Moyog	Sg. Moyog	5SMYG001
			5SMYG002
			5SMYG003
			5SMYG004
	Sg. Padas	Sg. Bunsit	5SPDS001
		Sg. Liawan	5SPDS002
		Sg. Padas	5SPDS003
			5SPDS004

Jadual 3.1: Senarai Lembangan Sungai dan Sungai-Sungai yang Dipantau mengikut Stesen, 2024
Table 3.1: List of the Catchments and Rivers Monitored by Station, 2024

NEGERI STATE	LEMBANGAN BASIN	SUNGAI RIVER	NOMBOR STESEN STATION NUMBER
Sabah	Sg. Padas	Sg. Padas	5SPDS005
			5SPDS011
		Sg. Pangatan	5SPDS006
		Sg. Pegalan	5SPDS008
			5SPDS009
			5SPDS010
		Sg. Tandulu	5SPDS007
	Sg. Paitan	Sg. Paitan	5SPTN001
	Sg. Papar	Sg. Papar	5SPPR001
			5SPPR002
			5SPPR003
			5SPPR004
			5SPPR005
	Sg. Sapi	Sg. Sapi	5SSAP002
			5SSAP003
			5SSAP004
		Sg. Sualong	5SSAP001
	Sg. Segaliud	Sg. Segaliud	5SSLD001
			5SSLD002
	Sg. Segama	Sg. Segama	5SSGM001
			5SSGM002
			5SSGM003
	Sg. Sembulan	Sg. Sembulan	5SSBL001
			5SSBL002
	Sg. Silabukan	Sg. Silabukan	5SSBK001
			5SSBK002
	Sg. Sugut	Sg. Bongkud	5SSUG001
		Sg. Lohan	5SSUG002
		Sg. Merali	5SSUG003
		Sg. Sugut	5SSUG004
			5SSUG005
			5SSUG006
	Sg. Tawau	Sg. Tawau	5STWU001
			5STWU002
			5STWU003
			5STWU004
	Sg. Telipok	Sg. Telipok	5STLP001
			5STLP002
	Sg. Tenghilan	Sg. Tenghilan	5STHL001
	Sg. Tingkayu	Sg. Tingkayu	5STKY001
			5STKY002

Jadual 3.1: Senarai Lembangan Sungai dan Sungai-Sungai yang Dipantau mengikut Stesen, 2024
Table 3.1: List of the Catchments and Rivers Monitored by Station, 2024

NEGERI STATE	LEMBANGAN BASIN	SUNGAI RIVER	NOMBOR STESEN STATION NUMBER
Sabah	Sg. Tuaran	Sg. Damit	5STUA001
			5STUA002
		Sg. Song Sai	5STUA003
		Sg. Tuaran	5STUA004
			5STUA005
	Sg. Tungku	Sg. Tungku	5STKU001
			5STKU002
	Sg. Umas-Umas	Sg. Umas-Umas	5SUSM001

Sejumlah 55 stesen daripada rangkaian stesen pengawasan kualiti air sungai tersebut adalah khusus bagi memantau kualiti air sungai di hulu muka sauk yang terpilih seperti yang dinyatakan dalam **Jadual 3.2**. Persampelan kualiti air sungai dijalankan secara berjadual dan mengikut kekerapan yang telah ditetapkan iaitu enam (6) kali setahun. Parameter-parameter kualiti air yang diukur merangkumi parameter fizikal, kimia dan biologikal seperti **Jadual 3.3.**

55 stations from the network are specifically for the purpose of monitoring river water quality at upstream of selected water intakes for water supply facilities as listed in **Table 3.2**. River water samplings are carried out periodically six (6) times a year and were analysed and tested for a range of physical, chemical, and biological parameters as shown in **Table 3.3.**

Jadual 3.2 : Stesen Pengawasan Kualiti Air Sungai di Hulu Muka Sauk
Table 3.2 : River Water Quality Monitoring Station of Upstream Water Intake

NEGERI STATE	LEMBANGAN SUNGAI RIVER BASIN	SUNGAI RIVER	STATION ID ID STATION	MUKA SAUK WATER INTAKE
Perlis	Sg. Perlis	Sg. Terusan Mada	1RPLS010	Loji Rawatan Air Arau Fasa IV
			1RPLS011	Loji Rawatan Air TTPC, Sg. Baru
Kedah	Sg. Ulu Melaka	Sg. Melaka	1KMLK003	Ulu Melaka
		Sg. Saga	1KMLK004	Padang Saga
	Sg. Kedah	Sg. Ahning	1KKDH011	Padang Sanai
		Sg. Padang Terap	1KKDH012	Kuala Nerang
		Sg. Temin	1KKDH010	Changloon
	Sg. Muda	Sg. Muda	1KMUD014	Jeneri
			1KMUD015	Jeniang
			1KMUD016	Bukit Selambau
			1KMUD018	Pinang Tunggal
			1KMUD019	Nami
		Sg. Sedim	1KMUD017	Bikan
P.Pinang	Sg. Pinang	Sg. Satu	1PPNG020	Batu Feringgi

Jadual 3.2 : Stesen Pengawasan Kualiti Air Sungai di Hulu Muka Sauk
Table 3.2 : River Water Quality Monitoring Station of Upstream Water Intake

NEGERI STATE	LEMBANGAN SUNGAI RIVER BASIN	SUNGAI RIVER	STATION ID ID STATION	MUKA SAUK WATER INTAKE
Perak	Sg. Bernam	Sg. Gelinting	1ABNM015	Loji Rawatan Air Ulu Slim
		Sg. Trolak	1ABNM014	Loji Rawatan Air Trolak Timur
	Sg. Kurau	Sg. Air Hitam	1AKRU007	Loji Rawatan Air Jelai
	Sg. Perak	Sg. Manong	1APRK060	Loji Rawatan Air Manong
		Sg. Perak	1APRK059	Loji Rawatan Air Sauk
		Sg. Tesong	1APRK062	Loji Rawatan Air Sg. Klah
		Sg. Woh	1APRK061	Loji Rawatan Air Kuala Woh
	Sg. Sepetang	Sg. Batu Tegoh	1ASPT016	Loji Rawatan Air Bukit Larut
Selangor	Sg. Klang	Sg. Gombak	2BKLG020	Loji Rawatan Air Gombak
	Sg. Langat	Sg. Batang Labu	2BLGT028	Loji Rawatan Air Salak Tinggi
		Sg. Semenyih	2BLGT010	Loji Rawatan Air Semenyih
Johor	Sg. Batu Pahat	Sg. Semberong Dam	3JBPT021	Semberong Dam
	Sg. Benut	Sg. Machap Dam	3JBNT008	Machap Dam
	Sg. Endau	Sg. Kahang	3JEND026	Jalan Felda Kahang Timur, Kluang
	Sg. Muar	Sg. Jelai	3NMUA054	Loji Rawatan Air Dangi
		Sg. Jementah	3JMUA040	Loji Rawatan Air Jementah
		Sg. Muar	3JMUA039	Loji Rawatan Air Gombang
	Sg. Pulai	Sg. Pulai Dam	3JPLI004	Pulai Dam
Melaka	Sg. Kesang	Sg. Chin-Chin	3MKSG008	Muka sauk Loji Rawatan Air Chin-chin
Pahang	Sg. Pahang	Sg. Bertam	4CBTM013	Loji Rawatan Air Habu
		Sg. Gapoi	4CPHG086	Muka sauk Loji Rawatan Air Gapoi
		Sg. Jempol	4CPHG087	Loji Air Sg Jerik
			4CPHG088	Loji Air Jengka 3
		Sg. Mentiga	4CPHG089	Loji Air Chini
		Sg. Terla	4CBTM012	Loji Rawatan Air Kuala Terla
		Sg. Triang	4CPHG074	Loji Rawatan Air Sg. Triang
		Sg. Ulong	4CBTM014	Brinchang Dam
Terengganu	Sg. Terengganu	Sg. Terengganu	4TTGG013	Loji Air Serada
Kelantan	Sg. Golok	Sg. Golok	4DGLK003	Syarikat Air Kelantan
	Sg. Kelantan	Sg. Chiku	4DKLT043	Felda Ciku 2
		Sg. Kelantan	4DKLT045	Loji Air Kelar, Pasir Mas
		Sg. Pehi	4DKLT044	Loji Air Pahi
Sabah	Sg. Padas	Sg. Padas	5SPDS011	Water Intake Jabatan Air Beaufort
	Sg. Papar	Sg. Papar	5SPPR004	Sekolah Kebangsaan Mandalipau
		Sg. Papar	5SPPR005	Water Intake Kogopon
Sarawak	Sg. Kerian	Sg. Selalang	6QKRN017	Selalang Water Intake
	Sg. Mukah	Sg. Mukah	6QMKH005	Mukah Water Intake
	Sg. Rajang	Sg. Daro	6QRJG021	Daro Water Intake
		Sg. Jemoreng	6QRJG022	Jemoreng Water Intake
		Sg. Pakan	6QRJG020	Pakan Water Intake
		Sg. Pila Parit	6QRJG023	Igan Water Intake

Jadual 3.3: Parameter-Parameter Pengukuran Kualiti Air Sungai
Table 3.3: River Water Quality Parameters

PARAMETER	UNIT
Oksigen Terlarut / Dissolved Oxygen (DO)	mg/l, % saturated
Permintaan Oksigen Biokimia / Biochemical Oxygen Demand (BOD)	mg/l
Permintaan Oksigen Kimia / Chemical Oxygen Demand (COD)	mg/l
Pepejal Terampai / Suspended Solid (SS)	mg/l
pH	unit
Ammoniacal Nitrogen (NH_3-N)	mg/l
Suhu / Temperature	^oC
Konduktiviti / Conductivity	µS
Kemasinan / Salinity	ppt
Kekeruhan / Turbidity	NTU
Pepejal terlarut / Dissolved solids	mg/l
Pepejal / Total solids	mg/l
Nitrat / Nitrate (NO_3)	mg/l
Klorida / Chloride (Cl)	mg/l
Fosfat / Phosphate (PO_4)	mg/l
Arsenik / Arsenic (As)	mg/l
Merkuri / Mercury (Hg)	mg/l
Kadmium / Cadmium (Cd)	mg/l
Kromium / Chromium (Cr)	mg/l
Plumbum / Lead (Pb)	mg/l
Zink / Zinc (Zn)	mg/l
Kalsium / Calsium (Ca)	mg/l
Ferum / Ferum (Fe)	mg/l
Kalium / Potassium (K)	mg/l
Magnesium / Magnesium (Mg)	mg/l
Natrium / Sodium (Na)	mg/l
Minyak dan Gris / Oil and Grease (O&G)	mg/l
Methylene Blue Active Substances (MBAS)	mg/l
E-coli	cfu/100ml
Total Coliform	cfu/100ml

Pada tahun 2024, sejumlah 8,118 sampel air sungai telah diuji merangkumi kesemua parameter kualiti air yang diukur. Kualiti air sungai dinilai berdasarkan IKA dan NWQS. IKA ditentukan dengan mengambil kira kepentingan enam parameter penunjuk pencemaran utama iaitu Oksigen Terlarut (DO), Keperluan Oksigen Biokimia (BOD), Keperluan Oksigen Kimia (COD), Ammoniakal Nitrogen (NH_3-N), pH dan Pepejal Terampai (SS).

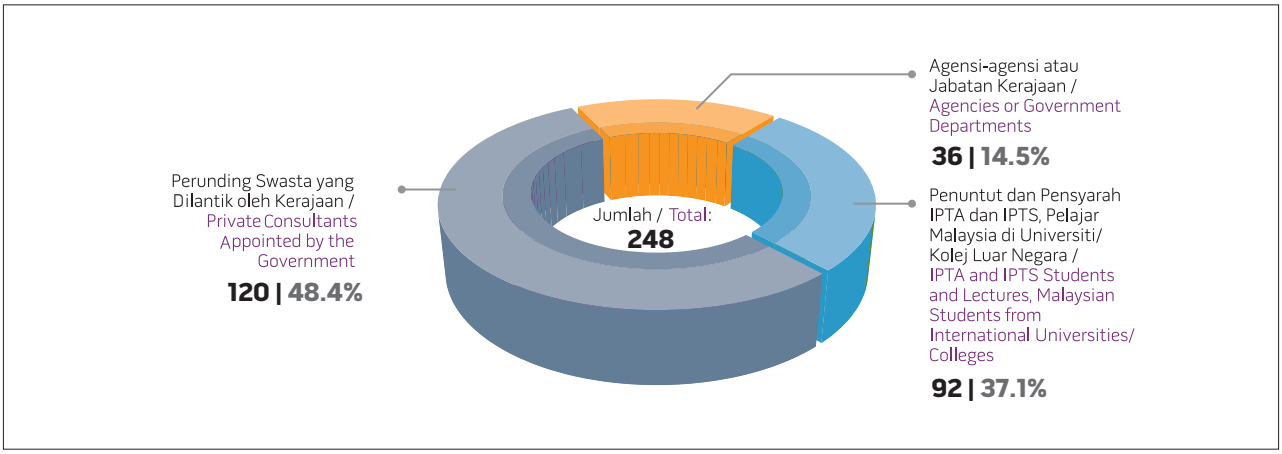
In 2024, a total 8,118 river water samples were tested covering all the water quality parameters. River water quality is appraised based on Water WQI and NWQS. The WQI is determined by taking into account the significance of six key pollution indicator parameters which are Dissolved Oxygen (DO), Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Ammoniacal Nitrogen (NH_3-N), pH, and Suspended Solids (SS).

Sebaran Data Kualiti Air Sungai

Data-data kualiti air sungai telah digunakan oleh dua (2) kategori pengguna utama iaitu agensi / jabatan kerajaan dan penuntut institusi pengajian tinggi yang menjalankan kajian berkaitan kualiti air sungai. Pada tahun 2024, sejumlah 248 permohonan data telah diterima oleh JAS. Sebanyak 37.1% daripada permohonan data kualiti air sungai adalah daripada golongan pelajar dan penyelidik di institusi pengajian tinggi, 48.4% daripada perunding swasta bagi projek Kerajaan dan swasta, manakala 14.5% adalah daripada agensi atau jabatan kerajaan. Bilangan permohonan data kualiti air sungai yang diterima oleh JAS pada tahun 2024 adalah seperti yang ditunjukkan oleh **Rajah 3.1.**

Dissemination of River Water Quality Data

River water quality data were utilized by two (2) categories of user which are government agencies and researchers from higher learning institutions. In 2024, a total of 248 data request were received by DOE. About 37.1% of the requests were from students and researchers from higher learning institutions, 48.4% from private consultant for government and private project, while 14.5% came from government agencies. The water quality data requests received by DOE in 2024 are as shown in **Figure 3.1.**



Rajah 3.1: Bilangan Permohonan mengikut Kategori Kelas Pemohon, bagi Tahun 2024
Figure 3.1: The Number of Applications by Applicant Class Category, for the Year 2024

Program dan Aktiviti yang Dijalankan Berkaitan Pengawasan Kualiti Air Sungai

Pada tahun 2024, beberapa program dan aktiviti pengawasan kualiti sungai telah dijalankan seperti yang disenaraikan di dalam

Programmes and Activities Carried Out Related to River Water Quality Monitoring

In 2024, there were several river quality monitoring activities and programs that had been carried out as listed in

Jadual 3.4: Program dan Aktiviti Program Pengawasan Kualiti Air Sungai Tahun 2024
Table 3.4: Programs and Activities Related to River Water Quality Monitoring Programme

TARIKH / DATE	AKTIVITI & PROGRAM / ACTIVITIES & PROGRAMMES	TEMPAT / VENUE
4 Jan 2024 4 Jan 2024	Sesi libat urus bersama Jabatan Pengairan dan Saliran (JPS) bagi Penetapan Lembangan Sungai di bawah Program Pengawasan Kualiti / Engagement session with the Department of Irrigation and Drainage (JPS) for River Basin Determination under the Quality Monitoring Program	Bilik Mesyuarat Teratai, Jabatan Alam Sekitar / Teratai Meeting Room, Department of Environment
21 Mac 2024 21 March 2024	Webinar Pengurusan Kualiti Air Sungai di Malaysia Sempena Hari Air Sedunia 2024 / Webinar on River Water Quality Management in Malaysia in Conjunction with World Water Day 2024	Secara atas talian / Online

Jadual 3.4: Program dan Aktiviti Program Pengawasan Kualiti Air Sungai Tahun 2024
Table 3.4: Programs and Activities Related to River Water Quality Monitoring Programme

TARIKH / DATE	AKTIVITI & PROGRAM / ACTIVITIES & PROGRAMMES	TEMPAT / VENUE
1 Apr 2024 1 Apr 2024	Siasatan di Lapangan Bersama JAS Negeri Kedah dan Pulau Pinang Bagi Mengenal Pasti Punca Pencemaran "*Notification Pollution Event (NPE)*" Level 1 di Stesen Pengawasan Kualiti Air Sungai Automatik (CR04P) Sungai Kulim, Pulau Pinang Joint Field Investigation by the Kedah and Penang DOEs to Identify the Cause of the Level 1 "Notification Pollution Event (NPE)" at the Automatic River Water Quality Monitoring Station (CR04P) in Sungai Kulim, Penang	Stesen Pengawasan CR04P, Sg. Kulim Monitoring Station CR04P, Sg. Kulim
19 Apr 2024 19 Apr 2024	Mesyuarat Jawatankuasa Khas Pemantauan Kualiti Air dan Pencemaran Sungai di Wilayah Persekutuan bersama Kerajaan Negeri Selangor / Meeting of the Special Committee for Monitoring Water Quality and River Pollution in the Federal Territory with the Selangor State Government	Bilik Mesyuarat MTES, Tingkat Bawah, Bangunan SSAAS, 40000 Shah Alam MTES Meeting Room, Ground Floor, SSAAS Building, 40000 Shah Alam
29 Apr 2024 29 Apr 2024	Bengkel Pengenalan Undang-Undang Alam Sekitar Environmental Law Introduction Workshop	Tanyaa Hotel, Cyberjaya Tanyaa Hotel, Cyberjaya
6 Jun 2024 6 June 2024	Mesyuarat Jawatankuasa Khas Menangani Kemerosotan Kualiti Air Sungai Kebangsaan (JKKAS) Bil. 1/2024 / Meeting of the Special Committee to Address the Deterioration of National River Water Quality (JKKAS) No. 1/2024	Putrajaya International Convention Centre (PICC) / Putrajaya International Convention Centre (PICC)
3 - 4 Julai 2024 3 - 4 July 2024	Bengkel Menangani Kemerosotan Kualiti Air Sungai Kebangsaan / Workshop on Addressing Deterioration in National River Water Quality	Sunway Hotel, Seberang Jaya, Pulau Pinang / Sunway Hotel, Seberang Jaya, Penang
1 Ogos 2024 1 August 2024	Mesyuarat Jawatankuasa Khas Menangani Kemerosotan Kualiti Air Sungai Kebangsaan (JKKAS) Bil. 2/2024 / Meeting of the Special Committee to Address the Deterioration of National River Water Quality (JKKAS) No. 2/2024	Cyberview Resort & Spa, Cyberjaya
6 Ogos 2024 6 August 2024	Mesyuarat Jawatankuasa Khas Menangani Kemerosotan Kualiti Air Sungai Wilayah Persekutuan / Special Committee Meeting to Address Deterioration in Federal Territory River Water Quality	Bilik Mesyuarat Perdana, Aras 7, Blok 2, Menara Seri Wilayah, Jabatan Wilayah Persekutuan / Bilik Mesyuarat Perdana, Aras 7, Blok 2, Menara Seri Wilayah, Jabatan Wilayah Persekutuan
28 - 30 Ogos 2024 28 - 30 August 2024	Lawatan Stesen Pengawasan Kualiti Air Sungai Automatik (CR10B), Sungai Labu Bersama Pegawai Kementerian Kesihatan Malaysia / Visit to the Automatic River Water Quality Monitoring Station (CR10B), Sungai Labu with Officials from the Ministry of Health Malaysia	Stesen Pengawasan Kualiti Air Sungai Automatik (CR10B) / Automatic River Water Quality Monitoring Station (CR10B)





▸ Sesi Libat Urus bersama Jabatan Pengairan dan Saliran (JPS) bagi Penetapan Lembangan Sungai di bawah Program Pengawasan Kualiti yang Dipengerusikan oleh Y.Brs Dr. Norhazni binti Mat Sari, Timbalan Ketua Pengarah (Operasi), Jabatan Alam Sekitar Malaysia / Engagement Session with the Department of Irrigation and Drainage (JPS) for River Basin Determination under the Quality Supervision Program Chaired by Y.Brs Dr. Norhazni binti Mat Sari, Deputy Director General (Operations), Department of Environment Malaysia





▸ Webinar Pengurusan Kualiti Air Sungai di Malaysia sempena Hari Air Sedunia 2024 / Webinar On River Water Quality Management in Malaysia in Conjunction with World Water Day 2024



▲ Siasatan di Lapangan Bersama JAS Negeri Kedah dan Pulau Pinang Bagi Mengenal Pasti Punca Pencemaran "*Notification Pollution Event (NPE)*" Level 1 di Stesen Pengawasan Kualiti Air Sungai Automatik (CR04P) Sungai Kulim, Pulau Pinang
Joint Field Investigation by the Kedah and Penang DOEs to Identify the Cause of the Level 1 "Notification Pollution Event (NPE)" at the Automatic River Water Quality Monitoring Station (CR04P) in Sungai Kulim, Penang



▲ Mesyuarat Jawatankuasa Khas Pemantauan Kualiti Air dan Pencemaran Sungai di Wilayah Persekutuan bersama Kerajaan Negeri Selangor / Meeting of the Special Committee for Monitoring Water Quality and River Pollution in the Federal Territory with the Selangor State Government




▲ Bengkel Pengenalan Undang-Undang Alam Sekitar
Environmental Law Introduction Workshop







▲ Mesyuarat Jawatankuasa Khas Menangani Kemerosotan Kualiti Air Sungai Kebangsaan (JKKAS) Bil. 2/2024 / Meeting of the Special Committee to Address the Deterioration of National River Water Quality (JKKAS) No. 2/2024



◀ Bengkel Menangani Kemerosotan Kualiti Air Sungai Kebangsaan / Workshop on Addressing Deterioration in National River Water Quality



▸ Mesyuarat Jawatankuasa Khas Menangani Kemerosotan Kualiti Air Sungai Kebangsaan (JKKAS) Bil. 2/2024 / Meeting of the Special Committee to Address the Deterioration of National River Water Quality (JKKAS) No. 2/2024



▸ Mesyuarat Jawatankuasa Khas Menangani Kemerosotan Kualiti Air Sungai Wilayah Persekutuan / Special Committee Meeting to Address Deterioration in Federal Territory River Water Quality





▴ Lawatan Stesen Pengawasan Kualiti Air Sungai Automatik (CR10B), Sungai Labu Bersama Pegawai Kementerian Kesihatan Malaysia / Visit to the Automatic River Water Quality Monitoring Station (CR10B), Sungai Labu with Officials from the Ministry of Health Malaysia

PENGAWASAN KUALITI AIR TANAH

Program-Program yang Dijalankan Berkaitan Pengawasan Kualiti Air Tanah

Sepanjang tahun 2024, terdapat beberapa aktiviti yang telah dijalankan oleh Seksyen Pengawasan Kualiti Air Tanah, Bahagian Air dan Marin. Aktiviti - aktiviti tersebut adalah seperti di bawah:

Program Audit Di Stesen Pengawasan Kualiti Air Tanah di Selangor, Kedah dan Pahang

Tujuan program audit ini dijalankan adalah seperti berikut:

1. Menjalankan penilaian terhadap peruntukan penyelenggaraan luaran dan dalaman untuk JAS Negeri;
2. Memastikan kerja persampelan yang dijalankan mengikut Prosedur Operasi Tetap Program Pengawasan Kualiti Air Tanah;
3. Mengenal pasti perubahan pembangunan tanah di sekitar lokasi stesen pengawasan kualiti air tanah; dan
4. Menyiasat aduan berkaitan stesen-stesen pengawasan kualiti air tanah.



▲ Kerja Persampelan Dijalankan mengikut Prosedur Operasi Tetap Program Pengawasan Kualiti Air Tanah.
The Sampling Procedure is Carried out According to the Standard Operating Procedure of the Groundwater Quality Monitoring Programme.

GROUNDWATER QUALITY MONITORING

Programmes Conducted By Groundwater Quality Monitoring Section

In 2024, there were several activities that had been carried out by the Groundwater Quality Monitoring Section, Water and Marine Division. The activities were as follows:

Groundwater Quality Monitoring Station Audit in Selangor, Kedah and Pahang

The objectives of this audit program were to:

1. Conduct an assessment of external and internal maintenance provisions for the State Department of Environment to ensure that the groundwater quality sampling procedure by officers strictly follows the Standard Operation Procedure of the Groundwater Quality Monitoring Program.
2. Identify land use changes around the location of groundwater quality monitoring stations; and
3. Investigate complaints from officers related to groundwater quality monitoring stations.



▲ Analisis menggunakan Peralatan in-situ Dijalankan oleh Pegawai-pegawai JAS Cawangan Langkawi semasa Program Audit Sistem Pengawasan Air Tanah pada 30 - 31 Julai 2024.
In-situ Analysis was Carried out by DOE Langkawi Branch Officers during the Groundwater Monitoring System Audit on 30 - 31 July 2024.

Projek Rancangan Malaysia Ke-12: Penambahan Rangkaian Stesen Pengawasan Kualiti Air Tanah Kebangsaan

Berikut adalah aktiviti-aktiviti yang telah dijalankan:

SESI *TESTING & COMMISSIONING* BAGI PROJEK PEMBINAAN STESEN PENGAWASAN KUALITI AIR TANAH KEBANGSAAN DI MALAYSIA DI BAWAH RANCANGAN MALAYSIA KE-12 DI NEGERI PAHANG

Program ini telah dijalankan pada 2 Ogos 2024 bertempat di Stesen Pengawasan Kualiti Air Tanah yang terletak di Institut Latihan Perindustrian Kuantan, Akademi Maritim Sultan Ahmad Shah (AMSAS) dan Pelabuhan Kuantan. Sesi ini telah dihadiri oleh pihak kontraktor, JPS Pahang, JPS Perak, JAS Pahang serta pegawai dari Seksyen Pengawasan Air Tanah, Bahagian Air dan Marin, JAS Putrajaya.

12th Malaysia Plan Project: Expansion of the National Groundwater Quality Monitoring Station Network

The following activities were carried out:

TESTING & COMMISSIONING SESSION FOR THE CONSTRUCTION OF THE NATIONAL GROUNDWATER QUALITY MONITORING STATION IN MALAYSIA UNDER THE 12TH MALAYSIA PLAN IN PAHANG

This program was conducted on 2 August 2024 at the Groundwater Quality Monitoring Station located at the Industrial Training Institute Kuantan, Sultan Ahmad Shah Maritime Academy (AMSAS), and Kuantan Port. The session was attended by the contractor, JPS Pahang, JPS Perak, DOE Pahang, as well as officers from the Groundwater Monitoring Section, Water and Marine Division, DOE Putrajaya.





Sesi Testing & Commissioning Bagi Projek Pembinaan Stesen Pengawasan Kualiti Air Tanah Terletak di Institut Latihan Perindustrian Kuantan, Akademi Maritim Sultan Ahmad Shah (AMSAS) dan Pelabuhan Kuantan / Testing & Commissioning Session for the Groundwater Quality Monitoring Station Construction Project located at the Kuantan Industrial Training Institute, Sultan Ahmad Shah Maritime Academy (AMSAS) and Kuantan Port

KURSUS *OPERATION & MAINTENANCE* STESEN PENGAWASAN AIR TANAH KEBANGSAAN DI MALAYSIA DI BAWAH RANCANGAN MALAYSIA KE-12 DI NEGERI PAHANG

Kursus tersebut telah berlangsung pada 26 Ogos 2024 jam 9.30 pagi bertempat di Bilik Mesyuarat Bahagian Perkhidmatan Mekanikal dan Elektrikal, JPS Pahang. Kursus ini telah disampaikan oleh Ir. Ts. Ahmad Rashdan bin Mansor selaku pihak kontraktor dari SJ Padu Bersatu dan dihadiri oleh 14 orang pegawai dari Bahagian Perkhidmatan Mekanikal & Elektrikal JPS, pegawai Unit Pengawasan JAS Pahang serta pegawai Seksyen Pengawasan Air Tanah, Bahagian Air dan Marin, JAS Putrajaya.

OPERATION & MAINTENANCE COURSE FOR THE NATIONAL GROUNDWATER QUALITY MONITORING STATION IN MALAYSIA UNDER THE 12TH MALAYSIA PLAN IN PAHANG

The course took place on 26 August 2024 at 9:30 am at the Mechanical and Electrical Services Division Meeting Room, JPS Pahang. The course was presented by Ir. Ts. Ahmad Rashdan bin Mansor from SJ Padu Bersatu attended by 14 officers from the Mechanical & Electrical Services Division of JPS, Monitoring Unit of DOE Pahang, as well as officers from the Groundwater Monitoring Section, Water and Marine Division, DOE Putrajaya.





▲ Kursus Operation & Maintenance Stesen Pengawasan Air Tanah Kebangsaan Di Malaysia
Operation & Maintenance Course for the National Groundwater Quality Monitoring Station In Malaysia

Lawatan Verifikasi ke Tapak Cadangan Lokasi Pembinaan Stesen Pengawasan Kualiti Air Tanah (SPeKAT) di Premis Luvata Sdn. Bhd., Pasir Gudang

Seksyen Pengawasan Air Tanah, Bahagian Air dan Marin, JAS Putrajaya telah mengadakan lawatan verifikasi ke tapak cadangan lokasi pembinaan Stesen Pengawasan Kualiti Air Tanah (SPeKAT) di premis Luvata Sdn. Bhd., Pasir Gudang. Lawatan ini telah diadakan pada 25 April 2024 bagi melihat kesesuaian dan mendapatkan ketetapan lokasi yang dipilih untuk pembinaan Stesen Pengawasan Kualiti Air Tanah di Bawah Rancangan Malaysia Ke-12 iaitu Projek Penambahan Rangkaian Stesen Pengawasan Kualiti Air Tanah Kebangsaan di Malaysia.

Verification Visit to the Proposed Site for the Construction of the Groundwater Quality Monitoring Station (SPeKAT) at Luvata Sdn. Bhd., Pasir Gudang

The Groundwater Monitoring Section, Water and Marine Division, DOE Putrajaya conducted a verification visit to the proposed site for the construction of the Groundwater Quality Monitoring Station (SPeKAT) at the premises of Luvata Sdn. Bhd., Pasir Gudang. The visit took place on 25 April 2024. The purpose of the visit was to assess its suitability and confirm the selected location for the construction of the Groundwater Quality Monitoring Station under the 12th Malaysia Plan for National Groundwater Quality Monitoring Station Network Expansion Project in Malaysia.





▲ Lawatan Verifikasi ke Tapak Cadangan Lokasi Pembinaan Stesen Pengawasan Kualiti air tanah (SPeKAT) di Premis Luvata Sdn. Bhd / Verification Visit to the Proposed Site for the Construction of Groundwater Quality Monitoring Station (SPeKAT) at the Luvata Sdn. Bhd Premises

Lawatan ke Tapak Cadangan Penggantian Stesen Pengawasan Kualiti Air Tanah (SPeKAT) di Chuping, Perlis

Satu lawatan ke tapak cadangan penggantian Stesen Pengawasan Kualiti Air Tanah (SPeKAT) di Chuping, Perlis telah diadakan pada 4 September 2024, jam 9.30 pagi. Lawatan ini telah disertai oleh pegawai-pegawai dari Seksyen Pengawasan Air Tanah, Bahagian Air dan Marin, JAS Putrajaya, JAS Negeri Perlis dan pemilik tapak iaitu Mutiara Perlis Sdn. Bhd. Lawatan ini diadakan bagi melihat kesesuaian tapak dan mendapatkan pandangan untuk pembinaan Stesen Pengawasan Air Tanah yang baru.

Visit to the Proposed Site for the Replacement of The Groundwater Quality Monitoring Station (SPeKAT) in Chuping, Perlis

A site visit to the proposed location for the replacement of the Groundwater Quality Monitoring Station (SPeKAT) in Chuping, Perlis was held on 4 September 2024 at 9:30 am. The visit was attended by officers from the Groundwater Monitoring Section, Water and Marine Division, DOE Putrajaya, DOE Perlis, and the site owner, Mutiara Perlis Sdn. Bhd. The purpose of the visit was to assess the suitability of the site and to gather input for the construction of the new Groundwater Quality Monitoring Station.

Sesi Penyerahan, Latihan Dan Ujicuba Peralatan Pengawasan Air Tanah

Satu sesi penyerahan, latihan dan ujicuba peralatan pengawasan air tanah iaitu Submersible Pump kepada JAS Sabah dan JAS Sarawak telah diadakan pada 10 September 2024 hingga 13 September 2024.

Latihan ini telah disampaikan oleh pihak pembekal dan telah dihadiri oleh pegawai-pegawai dari Seksyen Pengawasan Air Tanah, Bahagian Air dan Marin serta pegawai dari Jabatan Alam Sekitar Negeri Sabah dan Jabatan Alam Sekitar Cawangan Miri. Latihan ini telah diadakan di Stesen Pengawasan Kualiti Air Tanah Penampang, Sabah dan Stesen Pengawasan Air Tanah Kuala Lawas, Sarawak.

Handover Session, Training, and Trial of Groundwater Monitoring Equipment

A handover, training, and trial session for the groundwater monitoring equipment, specifically the Submersible Pump, was held from 10 September 2024 to 13 September 2024.

The training was conducted by the equipment supplier and attended by officers from the Groundwater Monitoring Section, Water and Marine Division, as well as officers from Department of Environment Sabah and Department of Environment Miri Branch, Sarawak. The training took place at the Penampang Groundwater Quality Monitoring Station, Sabah and the Kuala Lawas Groundwater Monitoring Station, Sarawak.









▲ Sesi Penyerahan, Latihan dan Ujicuba Peralatan Pengawasan Air Tanah iaitu Submersible Pump kepada JAS Sabah dan JAS Sarawak / Handover, Training and Testing Session of Groundwater Monitoring Equipment, Specifically Submersible Pumps to DOE Sabah and DOE Sarawak

PROGRAM KAWALAN PENCEMARAN DAN PENGURUSAN TINDAK BALAS TUMPAHAN MINYAK

Pada tahun 2024, Bahagian Air dan Marin, Jabatan Alam Sekitar (JAS) telah menganjurkan dua belas (12) program berkaitan kawalan dan pengurusan tindak balas tumpahan minyak **(Jadual 3.5)**. Program ini telah dihadiri oleh pegawai JAS, agensi-agensi kerajaan dan swasta di bawah Jawatankuasa Operasi Kebangsaan Tumpahan Minyak (National Oil Spill Operation Committee, NOSC) serta pihak berkepentingan yang berkaitan.

Objektif program yang dijalankan adalah:

i. Mendapatkan input/ ulasan daripada ahli Jawatankuasa dalam pengemaskinian *Standard Operating Procedure (SOP) for Joint Oil Spill Combat in the South China Sea Including Brunei Bay for Brunei and Malaysia.*

ii. Mendapatkan input/ ulasan daripada pihak berkepentingan yang terdiri daripada agensi kerajaan dan swasta dalam projek Rancangan Malaysia Ke-12 iaitu bagi Kajian Mekanisme Pelaksanaan Pematuhan Kepada Pelan Tindak Balas Tumpahan Minyak, Draf Peraturan-Peraturan Kualiti Alam Sekeliling (Kawalan Pencemaran Minyak di Laut) 20XX, Draf Peraturan-Peraturan Kualiti Alam Sekeliling (Kawalan Pencemaran Minyak di Laut) (Pencaruman Kepada Kumpulan Wang Alam Sekeling) 20XX dan Kajian Pemerkasaan Pangkalan Data *Hydrocarbon Fingerprinting System (HyFiS)* Bagi Meningkatkan Keupayaan Sistem dalam Menjalankan Pemadanan Profil Minyak Hidrokarbon.

iii. Memberi latihan dan pendedahan kepada pegawai JAS dan ahli Jawatankuasa dalam operasi tindak balas melawan tumpahan minyak di perairan Malaysia termasuk hands-on penggunaan Aplikasi OILMAP *for Oil Spill Trajectory* serta perkara berkaitan tuntutan dan pampasan yang terlibat dalam kawalan dan pembersihan minyak akibat tumpahan minyak daripada kapal.

iv. Mewujudkan skop kerjasama dengan agensi maritime dalam pengurusan kes tumpahan minyak iaitu dalam elemen penguatkuasaan di laut dan tindak balas kawalan dan pembersihan minyak akibat insiden tumpahan minyak di laut.

OIL SPILL POLLUTION CONTROL AND RESPONSE MANAGEMENT PROGRAMMES

In 2024, the Marine and Water Division organized twelve (12) programmes related to oil spill pollution control and response management **(Table 3.5)**. Officers from the Department of Environment (DOE), government and private agencies under the National Oil Spill Operation Committee (NOSC) as well as other stakeholders attended these programmes.

The objectives of the programmes are:

i. To obtain input/ comments from the Committee Members in updating the Standard Operating Procedure (SOP) For Joint Oil Spill Combat in the South China Sea Including Brunei Bay for Brunei and Malaysia.

ii. To obtain input/ comment from stakeholders that included government and private agencies for the projects under 12th Malaysia Plan: Study in the Mechanism for Compliance Implementation of the Oil Spill Response Plan, the draft of Environmental Quality (Control of Oil Pollution at Sea) Regulations 20XX, the draft of Environmental Quality (Control of Oil Pollution at Sea) (Contribution to the Environmental Fund) Regulations 20XX and the Study in Empowering Hydrocarbon Fingerprinting System (HyFiS) Database by Improving the System's Capability in Hydrocarbon Oil Profile Matching.

iii. To give training and exposure to the officers from the Department of Environment (DOE) and the Committee Members in oil spill response operations within Malaysian waters including the hands-on training of OILMAP for Oil Spill Trajectory and matter related to claim and compensation in oil spill response due to spillage from the ship.

iv. To establish the collaboration scopes with maritime agencies in the oil spill management, both in enforcement in marine pollution element and in oil controlling and clean up response due to spill incident at sea.

Jadual 3.5: Senarai Program yang Telah Dilaksanakan
Table 3.5: List of Programme Conducted

BIL NO	PROGRAM PROGRAMME	TARIKH DATE
1	Sesi libat urus Kajian Mekanisme Pelaksanaan Pematuhan Pelan Tindak Balas Kawalan Tumpahan Minyak Siri 3 Engagement session on the Study of the Implementation of the Mechanism in Compliance to the Oil Spill Response Plan Series 3	5 – 7 Mac 2024 5 – 7 March 2024
2	Sesi libat urus Siri 3 Projek Kajian Pemerkasaan Pangkalan Data Hydrocarbon Fingerprinting System (HyFiS) bagi Meningkatkan Keupayaan Sistem dalam Menjalankan Pemadanan Profil Minyak Hidrokarbon Series 3 Engagement session on the Study of Empowering Hydrocarbon Fingerprinting System (HyFiS) Database by Improving the System's Capability in Hydrocarbon Oil Profile Matching	23 – 25 April 2024 23 – 25 April 2024
3	Engagement & Appreciation Ceremony di antara Jabatan Alam Sekitar Malaysia dan PETRONAS Engagement & Appreciation Ceremony between the Department of Environment Malaysia and PETRONAS	30 April 2024 30 April 2024
4	Sesi libat urus Task Force Kerjasama Dua Hala Antara Jabatan Alam Sekitar (JAS) dan Jabatan Laut Malaysia (JLM) Engagement session of the Bilateral Cooperation Task Force Between the Department of Environment (DOE) and the Marine Department of Malaysia (JLM)	8 – 10 Mei 2024 8 – 10 May 2024
5	Sesi libat urus Claim & Compensation in Oil Spill Response Engagement session on Claim & Compensation in Oil Spill Response	14 – 17 Mei 2024 14 – 17 May 2024
6	Latih Amal Melawan Tumpahan Minyak Tahun 2024 - Ex-Empurau Table-Top Exercise for Oil Spills Response in 2024 - Ex-Empurau	10 – 14 Jun 2024 10 – 14 June 2024
7	Sesi libat urus Kajian Mekanisme Pelaksanaan Pematuhan Pelan Tindak Balas Kawalan Tumpahan Minyak Siri 4 Engagement session on the Study of the Implementation of the Mechanism in Compliance to the Oil Spill Response Plan Series 4	24 – 25 Jun 2024 24 – 25 June 2024
8	Sesi libat urus Siri 4 Projek Kajian Pemerkasaan Pangkalan Data Hydrocarbon Fingerprinting System (HyFiS) bagi Meningkatkan Keupayaan Sistem dalam Menjalankan Pemadanan Profil Minyak Hidrokarbon Series 4 Engagement session on the Study of Empowering Hydrocarbon Fingerprinting System (HyFiS) Database by Improving the System's Capability in Hydrocarbon Oil Profile Matching	29 – 31 Julai 2024 29 – 31 July 2024
9	Sesi libat urus bagi Program Pengujian Dokumen Tatacara Audit Pelan Tindak Balas Kawalan Tumpahan Minyak (Oil Spill Response Plan, OSRP) untuk Zon Selatan Engagement session for Testing the Procedure Document for Auditing the Oil Spill Response Plan (OSRP) at South Zone	4 – 8 Ogos 2024 4 – 8 August 2024
10	Sesi libat urus bagi Program Pengujian Dokumen Tatacara Audit Pelan Tindak Balas Kawalan Tumpahan Minyak (Oil Spill Response Plan, OSRP) untuk Zon Pantai Timur Engagement session for the Document Testing Programme on Audit Procedures of the Oil Spill Response Plan (OSRP) for the East Coast Zone	23 – 27 Sept 2024 23 – 27 Sept 2024
11	Sesi libat urus Pengemaskinian Standard Operating Procedure (SOP) For Joint Oil Spill Combat in the South China Sea Including Brunei Bay for Brunei and Malaysia Engagement session on Updating the Standard Operating Procedure (SOP) for Joint Oil Spill Combat in the South China Sea Including Brunei Bay for Brunei and Malaysia	15 – 17 Okt 2024 15 – 17 Oct 2024
12	Mesyuarat Jawatankuasa Operasi Kebangsaan Tumpahan Minyak Tahun 2024 National Oil Spill Operation Committee Meeting in 2024	4 Nov 2024 4 Nov 2024



▸ Sesi Libat Urus Kajian Mekanisme Pelaksanaan Pematuhan Pelan Tindak Balas Kawalan Tumpahan Minyak Siri 3 pada 5–7 Mac 2024 di Hotel Lexis Port Dickson, Negeri Sembilan / Engagement Session on the Study of the Implementation of the Mechanism in Compliance to the Oil Spill Response Plan Series 3 on 5-7 March 2024 at Hotel Lexis Port Dickson, Negeri Sembilan





▲ Sesi Libat Urus Siri 3 Projek Kajian Pemerkasaan Pangkalan Data Hydrocarbon Fingerprinting System (HyFiS) bagi Meningkatkan Keupayaan Sistem dalam Menjalankan Pemadanan Profil Minyak Hidrokarbon pada 23-25 April 2024 di Hotel The Pearl, Kuala Lumpur / Series 3 Engagement Session on the Study of Empowering Hydrocarbon Fingerprinting System (HyFiS) Database by Improving the System's Capability in Hydrocarbon Oil Profile Matching on 23-25 April 2024 at The Pearl Hotel, Kuala Lumpur



▲ Engagement & Appreciation Ceremony di antara Jabatan Alam Sekitar Malaysia dan PETRONAS pada 30 April 2024 di Menara Berkembar PETRONAS / Engagement & Appreciation Ceremony between Department of Environment Malaysia and PETRONAS on 30 April 2024 at PETRONAS Twin Tower



▲ Sesi Libat Urus Task Force Kerjasama Dua Hala Antara Jabatan Alam Sekitar (JAS) dan Jabatan Laut Malaysia (JLM) pada 8-10 Mei 2024 di Hotel The Best Western Shah Alam, Selangor / Engagement Session of the Bilateral Cooperation Task Force between the Department of Environment (DOE) and the Marine Department of Malaysia (JLM) on 9 -10 May 2024 at The Best Western Hotel, Shah Alam, Selangor



▸ Sesi Libat Urus 'Claim & Compensation in Oil Spill Response' pada 14 -17 Mei 2024 di The Pearl Kuala Lumpur / Engagement Session on Claim & Compensation in Oil Spill Response Response on 14 -17 May 2024 at The Pearl Kuala Lumpur







▲ Latih Amal Melawan Tumpahan Minyak Tahun 2024 - Ex-Empurau pada 10 -14 Jun 2024 di Miri Sarawak
Table-Top Exercise for Oil Spills Response in 2024 - Ex-Empurau on 10 - 14 June 2024 at Miri Sarawak



▸ Sesi Libat Urus Kajian Mekanisme Pelaksanaan Pematuhan Pelan Tindak Balas Kawalan Tumpahan Minyak Siri 4 pada 24 -25 Jun 2024 di Hotel Dorsett Subang, Selangor / Engagement Session on the Study of the Implementation of the Mechanism for Compliance to the Oil Spill Response Plan Series 4 on 24 -25 June 2024 at Hotel Dorsett Subang, Selangor



▸ Sesi Libat Urus Siri 4 Projek Kajian Pemerkasaan Pangkalan Data Hydrocarbon Fingerprinting System (HyFiS) bagi Meningkatkan Keupayaan Sistem dalam Menjalankan Pemadanan Profil Minyak Hidrokarbon pada 29 -31 Julai 2024 di Hotel Corus Paradise, Port Dickson, Negeri Sembilan
Series 4 Engagement Session on the Study of Empowering Hydrocarbon Fingerprinting System (HyFiS) Database by Improving the System's Capability in Hydrocarbon Oil Profile Matching on 29 - 31 July 2024 at Corus Paradise Hotel. Port Dickson, Negeri Sembilan





▲ Sesi Libat Urus bagi Program Pengujian Dokumen Tatacara Audit Pelan Tindak Balas Kawalan Tumpahan Minyak (Oil Spill Response Plan, OSRP) untuk Zon Selatan pada 4 - 8 Ogos 2024 di MMHE Pasir Gudang, Johor / Engagement Session for Document Testing Programme on Audit Procedures of Oil Spill Response Plan (OSRP) at South Region on 4-8 August 2024 at MMHE Pasir Gudang, Johor



▲ Sesi Libat Urus bagi Program Pengujian Dokumen Tatacara Audit Pelan Tindak Balas Kawalan Tumpahan Minyak (Oil Spill Response Plan, OSRP) untuk Zon Pantai Timur pada 23-27 Sept 2024 di KPSB Kerteh, Terengganu Engagement Session for Document Testing Programme on Audit Procedures of Oil Spill Response Plan (OSRP) at East Coast Zone on 23-27 Sept 2024 at KPSB Kerteh, Terengganu





▲ Sesi Libat Urus Pengemaskinian Standard Operating Procedure (SOP) for Joint Oil Spill Combat in the South China Sea including Brunei Bay for Brunei and Malaysia pada 15-17 Oktober 2024 di Hotel The Klagan, Sabah Engagement Session on Updating the Standard Operating Procedure (SOP) for Joint Oil Spill Combat in the South China Sea Including Brunei Bay for Brunei and Malaysia on 15-17 October 2024 at The Klagan Hotel, Sabah



▲ Brunei Bay for Brunei and Malaysia pada 15-17 Oktober 2024 di Hotel The Klagan, Sabah/ Engagement session on Updating the Standard Operating Procedure (SOP) for Joint Oil Spill Combat in the South China Sea Including Brunei Bay for Brunei and Malaysia on 15-17 October 2024 at The Klagan Hotel, Sabah



▲ Mesyuarat Jawatankuasa Operasi Kebangsaan Tumpahan Minyak Tahun 2024 pada 4 November 2024 di The Pearl Kuala Lumpur / National Oil Spill Operation Committee Meeting, 2024 on 4 November 2024 at The Pearl Kuala Lumpur

JAWATANKUASA REVOLVING FUND (RFC) BAGI SELAT MELAKA DAN SELAT SINGAPURA

Revolving Fund Committee (RFC) telah ditubuhkan pada 11 Februari 1981 bagi tujuan melawan kejadian tumpahan minyak daripada kapal-kapal yang melalui Selat Melaka dan Selat Singapura.

Pengurusan Tabung ini dilaksanakan secara bergilir-gilir dalam kalangan tiga (3) buah negara anggota iaitu Indonesia, Malaysia dan Singapura bagi tempoh lima (5) tahun setiap giliran. Pengurusan Malaysia ke atas tabung ini telah tamat pada 31 Mac 2022. Mulai dari 1 April 2022 sehingga 31 Mac 2027, pengurusan tabung ini akan ditadbir urus oleh pihak Singapura.

Aktiviti yang telah dilaksanakan oleh RFC pada tahun 2024 adalah seperti berikut:

i. 2-Days Revolving Fund Committee – International Tanker Owner Pollution Federation (RFC-ITOPF Workshop) pada 20 -21 Februari 2024 di Village Hotel Bugis, Singapura

ii. Mesyuarat Teknikal Revolving Fund Committee (RFC) pada 22 Februari 2024 di Village Hotel Bugis, Singapura

iii. Mesyuarat Jawatankuasa Induk ke-43 Revolving Fund Committee (RFC) pada 24 Julai 2024 di M Hotel Singapura

iv. Lawatan lapangan ke Garden by The Bay – Flower Dome and Cloud Forest pada 25 Julai 2024

THE REVOLVING FUND COMMITTEE (RFC) OF STRAITS OF MALACCA AND SINGAPORE

The Revolving Fund Committee (RFC) was established on 11 February 1981, for the purpose of combating oil spills from ships passing through the Straits of Malacca and Singapore.

The management of this Fund is carried out on a rotational basis among the three (3) Littoral States, Indonesia, Malaysia, and Singapore, for a period of five (5) years for each cycle. Malaysia's management of this fund ended on 31 March 2022. From 1 April 2022 until 31 March 2027, the management of the fund will be administered by Singapore

The activities carried out by the RFC in the year 2024 were:

i. 2-Days Revolving Fund Committee – International Tanker Owner Pollution Federation Workshop (RFC-ITOPF Workshop) on 20 -21 February 2024 at Village Hotel Bugis, Singapore

ii. The Revolving Fund (RFC) Technical Meeting took place on 22 February 2024 at Royal Plaza on Village Hotel Bugis, Singapore

iii. The 43rd Revolving Fund Committee (RFC) Meeting on 24 July 2024 at M Hotel Singapore

iv. Trip to Garden by The Bay – Flower Dome and Cloud Forest on 25 July 2024

v. 'The Singapore International Bunkering Conference and Exhibition (SIBCON)' 2024 pada 9-11 Oktober 2024 di Resort World Sentosa, Singapura

vi. Mesyuarat 'RFC Working Group Virtual Meeting for Oil Spill Table-Top Exercise and Oil Spill Exercise' secara online pada 21 November 2024

v. The Singapore International Bunkering Conference and Exibition (SIBCON) 2024 on 9 -11 October 2024 at Resort World Sentosa, Singapor

vi. RFC Working Group Virtual Meeting for Oil Spill Table-Top Exercise and Oil Spill Exercise on 21 November 2024



▲ 2-Days Revoving Fund Committee – International Tanker Owner Pollution Federation (RFC-ITOPF Workshop) pada 20 - 21 Februari 2024 di Village Hotel Bugis, Singapura / 2-Days Revolving Fund Committee – International Tanker Owner Pollution Federation Workshop (RFC-ITOPF Workshop) on 20 - 21 February 2024 at Village Hotel Bugis, Singapore



▲ Mesyuarat Teknikal Revolving Fund Committee (RFC) pada 22 Februari 2024 di Village Hotel Bugis, Singapura
The Revolving Fund (RFC) Technical Meeting on 22 February 2024 at Village Hotel Bugis, Singapore



▲ Mesyuarat Jawatankuasa Induk ke-43 Revolving Fund Committee (RFC) pada 24 Julai 2024 di M Hotel, Singapura
The 43rd Revolving Fund Committee (RFC) Meeting on 24 July 2024 at M Hotel,




▲ Lawatan Lapangan ke Garden by The Bay – Flower Dome and Cloud Forest pada 25 Julai 2024
Trip to Garden by The Bay – Flower Dome and Cloud Forest on 25 July 25 2024





▲ 'The Singapore International Bunkering Conference and Exhibition (SIBCON)' 2024 pada 9 -11 Oktober 2024 di Resort World Sentosa, Singapura / The Singapore International Bunkering Conference and Exhibition (SIBCON) 2024 on 9 -11 October 2024 at Resort World Sentosa, Singapore

KES PENCEMARAN TUMPAHAN MINYAK DI PERAIRAN MALAYSIA

Sepanjang tahun 2024, sejumlah enam belas (16) kes pencemaran tumpahan minyak di perairan Malaysia telah dilaporkan kepada Jabatan Alam Sekitar. Laut China Selatan telah merekodkan kes tumpahan minyak sebanyak (6) kes, Selat Melaka (4) kes dan (6) kes di Selat Johor **(Jadual 3.6).**

Daripada enam belas (16) kes kejadian tumpahan minyak tersebut, (8) kes adalah berpunca daripada operasi kapal, (2) kes pelabuhan dan (6) kes adalah dari punca yang tidak diketahui **(Jadual 3.7).**

OIL SPILLS POLLUTION CASES AT MALAYSIAN WATERS

In 2024, the Department of Environment has received reports of sixteen (16) cases of oil spill pollution in Malaysia waters. Six (6) cases were recorded within the South China Sea, four (4) cases in the Straits of Malacca and six (6) case occurred within the Straits of Johor **(Table 3.6).**

Out of the sixteen (16) cases of oil spill incidents, eight (8) cases were due to vessels operation. Two (2) cases port and another six (6) cases were from unknown sources **(Table 3.7).**

Jadual 3.6: Kes Pencemaran Tumpahan minyak di Perairan Malaysia pada tahun 2024
Table 3.6: Cases of Oil Spill Pollution at Malaysia Waters in year 2024

LOKASI LOCATION	KAWASAN AREA		BIL. KES NO. OF CASES	NEGERI STATE
Laut China Selatan South China Sea	Perairan Malaysia Malaysian Waters	Semenanjung Peninsular	3	Johor (2) Pahang (1)
		Sabah, Sarawak & W.P Labuan	3	Sabah (1) Sarawak (1) W.P labuan (1)
	Zon Ekonomi Eksklusif (ZEE) Exclusive Economic Zone (EEZ)		0	-
Laut Sulu Sulu Sea	Perairan Malaysia Malaysian Waters	Sabah	-	-
Selat Melaka Straits of Malacca	Perairan Malaysia Malaysian Waters		4	Pulau Pinang (1) Perak (1) Melaka (1) Johor (1)
Selat Johor Straits of Johor	Perairan Malaysia Malaysian Waters	Barat / West	0	-
		Timur / East	6	Johor (6)
Jumlah / Total			**16**	

Jadual 3.7: Bilangan Kes Pencemaran Tumpahan Minyak di Perairan Malaysia Mengikut Punca, 2024
Table 3.7: The Number of Oil Spill Pollution Cases at Malaysia Waters by Source, 2024

PUNCA SOURCE	KEJADIAN INCIDENT	BILANGAN NUMBER
Kapal Vessel	Perlanggaran Collision	4
	Terkandas/ karam / kebakaran Grounding / sink / fire	2
	Penyelenggaraan kapal Ship maintenance activities	2
Pelabuhan/ terminal Port/ terminal	Kebocoran injap Valve leakage	2
	Kebocoran paip pemindah Transfer pipe leakage	-
Pelantar Platform	Tumpahan dari pelantar Spillage from platform	-
Lain-lain Others	Punca tidak dapat dikenal pasti Unknown source	6
Jumlah / Total		**16**

PROGRAM PENGAWASAN AIR MARIN

Lawatan Kerja Jabatan Alam Sekitar Ke Pusat Pencerapan Bumi, Universiti Kebangsaan Malaysia

Jabatan Alam Sekitar Ibu Pejabat telah mengadakan lawatan kerja ke Pusat Pencerapan Bumi (EOC), Universiti Kebangsaan Malaysia (UKM) pada 27 Mac 2024. Sesi lawatan kerja ini telah diketuai oleh Yang Berusaha Dr. Norhazni binti Mat Sari, Timbalan Ketua Pengarah (Operasi), Encik Rosli bin Osman, Pengarah Bahagian Air dan Marin (BAM), Puan Mukhtaroh binti Osman, Pengarah Bahagian Teknologi Maklumat, pegawai-pegawai dari Bahagian Air dan Marin, Bahagian Komunikasi Strategik dan Bahagian Teknologi Maklumat. Program Lawatan Kerja ini juga disertai oleh Yang Berbahagia Professor Emeritus Dato' ChM. Dr. Mazlin bin Mokhtar dan Yang Berusaha Dr. Abdul Rani bin Abdullah.

Yang Berbahagia Profesor Madya Dr. Zaini bin Sakawi, Pengarah Institut Perubahan Iklim (IPI), UKM telah memberi penerangan mengenai latar belakang IPI dan diikuti dengan taklimat oleh Yang Berbahagia Profesor Madya Sr. Dr. Khairul Nizam bin Abdul Maulud selaku Ketua Pusat Pencerapan Bumi, UKM mengenai Pusat Pengurusan Alam Sekitar atau Environmental Management Centre (EMC), Centre for Tropical Climate Change System (IKLIM), Pusat Sains Angkasa serta program-program yang dilaksanakan oleh IPI. Lawatan kerja ini akan lebih mengeratkan kerjasama antara JAS dan UKM dalam pelbagai bidang antaranya perkongsian data ke arah pemantapan program pengawasan, peningkatan capacity building dan pelaksanaan program-program kesedaran berkaitan alam sekitar.

MARIN QUALITY MONITORING PROGRAM

Working Visit of the Department of Environment to the Earth Observation Centre, Universiti Kebangsaan Malaysia

Department of Environment (DOE) Headquarters conducted a working visit to the Earth Observation Centre (EOC), Universiti Kebangsaan Malaysia (UKM) on 27 March 2024. This working visit session was led by Yang Berusaha Dr. Norhazni binti Mat Sari, Deputy Director-General (Operations), Mr. Rosli bin Osman, Director of the Water and Marine Division (BAM), Mrs. Mukhtaroh binti Osman, Director of the Information Technology Division, officers from the Water and Marine Division, Strategic Communications Division and the Information Technology Division. The working visit programme was also attended by Professor Emeritus Dato' ChM. Dr. Mazlin bin Mokhtar and Yang Berusaha Dr. Abdul Rani bin Abdullah.

Associate Professor Dr. Zaini bin Sakawi, Director of the Institute of Climate Change (IPI), UKM, provided an explanation about the background of IPI, followed by a briefing by Associate Professor Sr. Dr. Khairul Nizam bin Abdul Maulud, Head of the Earth Observation Centre, UKM, about the Environmental Management Centre (EMC), Centre for Tropical Climate Change System (IKLIM), Space Science Centre and the programmes carried out by IPI. This working visit will strengthen the cooperation between the DOE and UKM in various areas, including data sharing towards strengthening monitoring programmes, enhancing capacity building and implementing environmental awareness programmes.





▲ Lawatan Kerja Jabatan Alam Sekitar ke Pusat Pencerapan Bumi, Universiti Kebangsaan Malaysia
Working Visit of the Department of Environment to the Earth Observation Centre, Universiti Kebangsaan Malaysia

Program Pengawasan Kualiti Air Marin di Sungai Dengkil Untuk Pegawai Kesihatan Latihan Sangkutan Sub Bidang Kepakaran Kesihatan Awam (Kesihatan Persekitaran)

Satu sesi pembelajaran dan taklimat mengenai pengoperasian Program Pengawasan Kualiti Air Marin di Sungai Dengkil, yang merupakan sebahagian daripada Program Pengawasan Kualiti Alam Sekitar atau Environmental Quality Monitoring Programme (EQMP), telah berjaya dilaksanakan pada 15 November 2024. Sesi ini khususnya dilaksanakan kepada pegawai kesihatan yang sedang menjalani latihan sangkutan sub bidang kepakaran kesihatan awam dari Kementerian Kesihatan Malaysia (KKM). Dalam sesi tersebut, pegawai tersebut telah diberi pendedahan yang mendalam mengenai pelaksanaan program pengawasan kualiti air marin yang dijalankan oleh Jabatan Alam Sekitar (JAS). Sebagai sebahagian daripada taklimat tersebut, satu sesi demonstrasi terperinci juga diadakan untuk memperkenalkan proses persampelan air marin secara praktikal, yang memberi peluang kepada pegawai kesihatan untuk memahami lebih jelas prosedur dan teknik yang digunakan dalam aktiviti pemantauan kualiti air marin.

Marine Water Quality Monitoring Programme at Sungai Dengkil for Health Officers in Public Health Specialty (Environmental Health) Internship Training

A learning and briefing session on the operation of the Marine Water Quality Monitoring Station at Sungai Dengkil, which is part of the Environmental Quality Monitoring Programme (EQMP), was successfully held on 15 November 2024. This session was specifically implemented for health officer undergoing training in the public health specialty from the Ministry of Health (MOH). During the session, the officers were given comprehensive exposure to the marine water quality monitoring programme carried out by the Department of Environment (DOE). As part of the briefing, a detailed demonstration was conducted to introduce the marine water sampling process in a practical manner, providing participant with an opportunity to better understand the procedures and techniques used in marine water quality monitoring activities.



▲ Program Pengawasan Kualiti Air Marin di Sungai Dengkil untuk Pegawai Kesihatan Latihan Sangkutan Sub Bidang Kepakaran Kesihatan Awam (Kesihatan Persekitaran) / Marine Water Quality Monitoring Programme at Sungai Dengkil for Health Officers in Public Health Specialty (Environmental Health) Internship Training

Sesi Taklimat Mengenai Program Data Alam Sekitar Kepada Kerajaan Negeri Johor

Jabatan Alam Sekitar (JAS) Ibu Pejabat, selaku urusetia Program Data Alam Sekitar, dengan kerjasama Bahagian Perancang Ekonomi Negeri Johor (BPENJ) dan JAS Negeri Johor, telah menganjurkan Sesi Taklimat Program Data Alam Sekitar pada 16 Disember 2024 di Opero Hotel Southkey, Johor Bahru.

Sesi taklimat ini telah dipengerusikan bersama oleh Yang Berhormat Dato' Haji Asman Shah bin Abd. Rahman, Timbalan Setiausaha Kerajaan Johor (Pembangunan) dan Yang Berbahagia Datuk Nor Yahati binti Awang, Timbalan Ketua Setiausaha (Kelestarian Alam), Kementerian Sumber Asli dan Kelestarian Alam (NRES). Turut hadir ialah Yang Berusaha Dr. Norhazni binti Mat Sari, Timbalan Ketua Pengarah (Operasi), Dr. Amirul Haffiz bin Ariff, Setiausaha Bahagian, Bahagian Perancang Ekonomi Negeri Johor (BPENJ), Puan Roslinda binti Ulang, Setiausaha Bahagian, Bahagian Pengurusan Alam Sekitar (NRES), Pengarah Bahagian Air dan Marin, Pengarah Bahagian Penilaian, Pengarah JAS Negeri Johor serta 120 pegawai kanan daripada pelbagai kementerian, jabatan, dan agensi di bawah Kerajaan Pusat dan Negeri Johor.

Sesi ini bertujuan memperkenalkan Program Data Alam Sekitar dan objektif pelaksanaan oleh JAS kepada agensi-agensi di bawah Kerajaan Negeri Johor. Selain itu, sesi ini juga membincangkan langkah-langkah mengukuhkan kerjasama antara Kerajaan Persekutuan dan Kerajaan Negeri Johor dalam menangani isu-isu alam sekitar.

Briefing Session on the Environmental Data Programme for the Johor State Government

Department of Environment (DOE) Headquarters, as the secretariat for the Environmental Data Programme, in collaboration with the Economic Planning Division of Johor State (BPENJ) and DOE Johor State, organised the Environmental Data Programme Briefing Session on 16 December 2024 at Opero Hotel Southkey, Johor Bahru.

The briefing session was co-chaired by Dato' Haji Asman Shah bin Abd. Rahman, Deputy State Secretary of Johor (Development) and Datuk Nor Yahati binti Awang, Deputy Secretary General (Environmental Sustainability), Ministry of Natural Resources and Environmental Sustainability (NRES). Also present were Yang Berusaha Dr. Norhazni binti Mat Sari, Deputy Director-General (Operations), Dr. Amirul Haffiz bin Ariff, Secretary of the Economic Planning Division of Johor State (BPENJ), Mrs. Roslinda binti Ulang, Secretary of the Environmental Management Division (NRES), the Director of the Water and Marine Division, the Director of the Assessment Division, the Director of DOE Johor State, as well as 120 senior officers from various ministries, departments and agencies under the Federal Government and Johor State Government.

The session aimed to introduce the Environmental Data Programme and its implementation objectives by DOE to agencies under the Johor State Government. In addition, the session also discussed measures to strengthen cooperation between the Federal Government and Johor State Government in addressing environmental issues.



▲ Sesi taklimat mengenai Program Data Alam Sekitar kepada Kerajaan Negeri Johor
Briefing session on the Environmental Data Programme to the Johor State Government

Program Lawatan Kerja Ke Sungai Segget Rejuvenation Project dan Regional Sewage Treatment Plant Sungai Segget, Johor Bahru

Jabatan Alam Sekitar (JAS) Ibu Pejabat dengan kerjasama Jabatan Alam Sekitar Negeri Johor telah mengadakan Program Lawatan Kerja ke Sungai Segget Rejuvenation Project dan Regional Sewage Treatment Plant (RSTP) di Sungai Segget, Johor Bahru pada 18 Disember 2024. Sesi lawatan kerja ini telah diketuai oleh Yang Berusaha Dr. Norhazni binti Mat Sari, Timbalan Ketua Pengarah (Operasi), serta dihadiri oleh pegawai-pegawai daripada Bahagian Air dan Marin, Bahagian Teknologi Maklumat, Bahagian Penguatkuasaan dan JAS Negeri Johor. Selain itu, lawatan kerja ini turut disertai oleh 15 peserta daripada pelbagai agensi dan institusi, termasuk:

- Jabatan Peguam Negara
- Jabatan Hal Ehwal Maritim
- Jabatan Perhutanan Semenanjung Malaysia
- Agensi Angkasa Malaysia (MYSA)
- Jabatan Kimia Malaysia
- Jabatan Kimia Negeri Johor
- Jabatan Laut Malaysia
- Jabatan Perikanan Malaysia
- Jabatan Perikanan Negeri Johor
- Bahagian Perancang Ekonomi Negeri Johor (BPENJ)
- KD Sultan Ismail
- Lembaga Pelabuhan Johor
- Suruhanjaya Perkhidmatan Air Negara (SPAN) Wilayah Selatan
- Badan Kawalselia Air Negeri Johor (BAKAJ); dan
- Pusat Pencerapan Bumi, Universiti Kebangsaan Malaysia

Semasa lawatan, para peserta telah diberi pendedahan mengenai program pengindahan dan pemuliharaan Sungai Segget di bawah Sungai Segget Rejuvenation Project yang dilaksanakan oleh Kerajaan Negeri Johor. Sesi taklimat ini dikendalikan oleh wakil daripada Majlis Bandaraya Johor Bahru.

Seterusnya, lawatan diteruskan ke Regional Sewage Treatment Plant di mana para peserta telah diberi penerangan mengenai operasi RSTP oleh Indah Water Konsortium Sdn. Bhd. (IWK). Selain itu, perancangan Cadangan Loji Rawatan Kumbahan Sungai Segget Fasa 2 telah dibentangkan oleh Iskandar Regional Development Authority (IRDA).

Working Visit Programme to the Sungai Segget Rejuvenation Project and Sungai Segget Regional Sewage Treatment Plant, Johor Bahru

Department of Environment (DOE) Headquarters in collaboration with the Department of Environment Johor State, organised a Working Visit Programme to the Sungai Segget Rejuvenation Project and the Sungai Segget Regional Sewage Treatment Plant (RSTP) in Johor Bahru on 18 December 2024. This working visit session was led by Yang Berusaha Dr. Norhazni binti Mat Sari, Deputy Director-General (Operations) and was attended by officers from the Water and Marine Division, Information Technology Division, Enforcement Division, and the DOE Johor State. In addition, the working visit was also attended by 15 participants from various agencies and institutions, including:

- Attorney General's Chambers
- Maritime Affairs Department
- Forestry Department of Peninsular Malaysia
- Malaysian Space Agency (MYSA)
- Department of Chemistry Malaysia
- Department of Chemistry Johor
- Department of Marine Malaysia
- Department of Fisheries Malaysia
- Fisheries Department of Johor Sate
- Johor State Economic Planning Division (BPENJ)
- KD Sultan Ismail
- Johor Port Authority
- National Water Services Commission (SPAN) Southern Region
- Johor State Water Regulatory Body (BAKAJ); and
- Earth Observation Centre, Universiti Kebangsaan Malaysia

During the visit, the participants were given an exposure to the beautification and conservation programme of Sungai Segget under the Sungai Segget Rejuvenation Project, which is being implemented by the Johor State Government. The briefing session was conducted by a representative from the Johor Bahru City Council.

The visit then continued to the Regional Sewage Treatment Plant where participants were briefed on the operations of the RSTP by Indah Water Konsortium Sdn. Bhd. (IWK). Additionally, the proposed Phase 2 Sewage Treatment Plant of Sungai Segget was presented by the Iskandar Regional Development Authority (IRDA).









◂ Program Lawatan Kerja ke Sungai Segget Rejuvenation Project dan Regional Sewage Treatment Plant Sungai Segget, Johor Bahru / Working Visit Programme to the Sungai Segget Rejuvenation Project and Sungai Segget Regional Sewage Treatment Plant, Johor Bahru

SESI PENGUJIAN DAN LIBAT URUS SISTEM eKAS DAN SISTEM MyPremis

Sesi ini dijalankan pada 28 Februari hingga 1 Mac 2024 bertempat di Bangi Resort Hotel, Bandar Bharu Bangi, Selangor.

Sesi pengujian ini diadakan bagi mencapai objektif berikut:

i. Mendapatkan input dan maklum balas peserta yang dijemput bagi pembangunan sistem atas talian bagi pemberitahuan bertulis system pengolahan efluen perindustrian (SPEP)

ii. Memuktamadkan spesifikasi yang telah dibincangkan dalam sesi sebelum ini.

SYSTEM TESTING SESSION FOR eKAS AND MyPremis FOR WATER NOTIFICATION MODULE

The session was held from 28 February to 1 March 2024 at Bangi Resort Hotel, Bandar Bharu Bangi, Selangor.

The objectives of the session are to:

i. Gather input and feedback from participants for the development of an online system for written notification of the industrial effluent treatment system (IETS)

ii. Finalize the specifications that have been discussed in the previous session.



▲ Peserta Bergambar Bersama
Group Photo of Program Participants



◀ Sesi Perkongsian Kemahiran Bersama Peserta / Group Discussion of Program Participants

MESYUARAT PENYELARASAN DAN HALA TUJU PASCA KAJIAN TOTAL MAXIMUM DAILY LOAD (TMDL) BAGI SUNGAI PERAI BERSAMA PIHAK BERKEPENTINGAN

Mesyuarat Penyelarasan dan Hala Tuju Pasca Kajian Total Maximum Daily Load (TMDL) bagi Sungai Perai bersama pihak berkepentingan telah diadakan pada 26 September 2024 bertempat di Jabatan Alam Sekitar Negeri Kedah. Mesyuarat ini telah dipengerusikan oleh Yang Berusaha Dr. Norhazni binti Mat Sari, Timbalan Ketua Pengarah (Operasi), Jabatan Alam Sekitar (JAS). Mesyuarat ini telah dihadiri oleh pegawai-pegawai JAS Ibu Pejabat, JAS Negeri Pulau Pinang dan Kedah serta pihak berkepentingan iaitu Jabatan Pengairan dan Saliran Malaysia, Lembaga Sumber Air Negeri Kedah (LSANK), Badan Kawal Selia Air (BKSA) Pulau Pinang, Majlis Perbandaran Kulim, Wiranda (M) Sdn. Bhd. serta tenaga pakar dalam bidang TMDL iaitu Dr. Abdul Rani bin Abdullah dan Profesor Madya Dr. Sarah Aziz binti Abdul Ghani Aziz.

Kajian Pembangunan Total Maximum Daily Load (TMDL) bagi Sungai Perai telah dilaksanakan oleh Jabatan Alam Sekitar menerusi Rancangan Malaysia Ke-12 (RMKe-12) dari tahun 2022 dan telah selesai disiapkan pada tahun 2023. Kajian ini telah dilaksanakan dengan melibatkan kerjasama pelbagai jabatan dan agensi kerajaan dan juga melibatkan kerjasama utama antara dua Kerajaan Negeri iaitu Kedah dan Pulau Pinang dengan mengambil maklum bahawa Lembangan Sungai Perai merentasi dua buah negeri tersebut.

Tujuan mesyuarat ini diadakan adalah untuk membincangkan hala tuju pasca Kajian Pembangunan TMDL bagi Sungai Perai supaya hasil kajian ini dapat diadaptasi, dimanfaatkan dan diterima pakai untuk memastikan kelestarian pengurusan sumber air negara terjamin termasuk memberi impak yang besar dari segi kualiti air sungai.

MEETING ON COORDINATION AND DIRECTION OF POST-TOTAL MAXIMUM DAILY LOAD (TMDL) STUDY FOR SUNGAI PERAI WITH STAKEHOLDERS

A Meeting on Coordination and Direction of Post-Total Maximum Daily Load (TMDL) Study for Sungai Perai with stakeholders was held on 26 September 2024 at the Kedah State Department of Environment. This meeting was chaired by Dr. Norhazni binti Mat Sari, Deputy Director General (Operations), Department of Environment (DOE). It was attended by officers from the DOE Headquarters, DOE Penang and Kedah State, as well as stakeholders including the Department of Irrigation and Drainage Malaysia, Kedah State Water Resources Board (LSANK), Penang Water Regulatory Body (BKSA), Kulim Municipal Council, Wiranda (M) Sdn. Bhd. and experts in the field of TMDL, namely Dr. Abdul Rani bin Abdullah and Associate Professor Dr. Sarah Aziz binti Abdul Ghani Aziz.

The Total Maximum Daily Load (TMDL) Development Study for the Sungai Perai has been carried out by the Department of Environment through the 12th Malaysia Plan (12MP) from 2022 and was completed in 2023. Given that the Perai River Basin crosses two states, this study was carried out with the assistance of numerous government departments and agencies as well as cooperation between the two state governments; Kedah and Penang.

The purpose of this meeting is to discuss the post-development direction of the TMDL Study for the Sungai Perai so that the study results can be adapted, utilized and adopted to ensure the sustainability of national water resource management, including making a significant impact on river water quality.



▲ Sesi Perbincangan dalam Mesyuarat
Discussion Session in the Meeting



▲ Ahli-ahli Mesyuarat yang Hadir
Attended Members of the Meeting

PROGRAM PENGAWASAN KUALITI ALAM SEKITAR (EQMP)

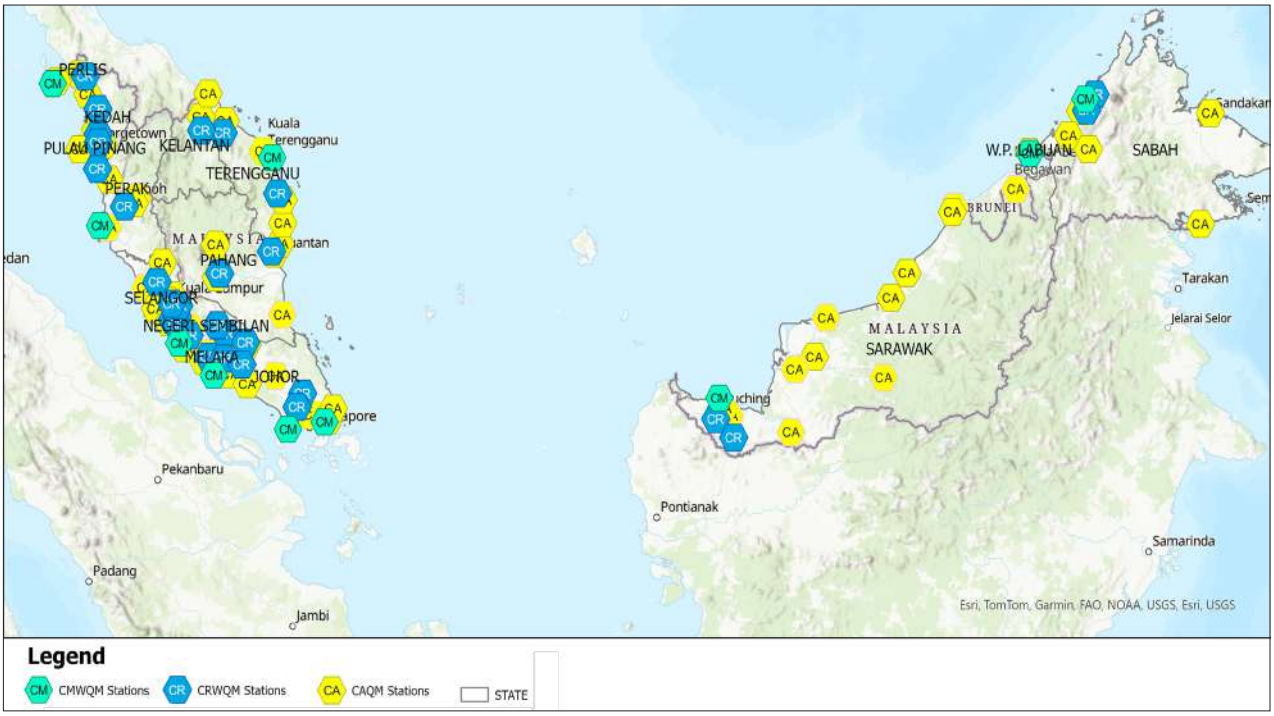
Program Pengawasan Kualiti Alam Sekitar atau EQMP merupakan program yang merangkumi pengumpulan data bagi pemantauan kualiti udara, kualiti air sungai dan kualiti air marin di seluruh Malaysia bagi tujuan melaporkan tahap sebenar kualiti alam sekitar negara dalam usaha untuk memantau, mencegah dan mengawal pencemaran. Sistem pengawasan EQMP akan berperanan sebagai mekanisma amaran awal bagi kejadian pencemaran alam sekitar seperti jerebu, tumpahan minyak, bencana industri dan pelupusan haram buangan yang toksik dan berbahaya. Ia juga boleh membantu pembuat dasar dan pembuat keputusan ke atas aktiviti penguatkuasaan Jabatan Alam Sekitar dan agensi berkaitan termasuk menyediakan input kepada perancangan projek-projek pembangunan. Sepanjang tahun 2024, semua stesen pengawasan beroperasi membekalkan data kualiti alam sekitar kepada pihak Jabatan Alam Sekitar (JAS).

Berikut disertakan taburan stesen pengawasan kualiti alam sekitar automatik bagi stesen kualiti udara, kualiti air sungai dan kualiti air marin di Malaysia.

ENVIRONMENTAL QUALITY MONITORING PROGRAMME (EQMP)

The Environmental Quality Monitoring Programme or EQMP is a programme which is made up of data collections for air quality monitoring, river water quality and marine water quality throughout Malaysia for the purpose of reporting the actual level of the nation's environmental quality in an effort to monitor, prevent and control pollution. The monitoring system of the EQMP will act as an early warning mechanism for the occurrence of environmental pollution such as haze, oil spill, industrial disaster and illegal dumping of toxic and harmful wastes. This can also assist the policy and decision makers on the enforcement of the activities by the Department of Environment (DOE) and related agencies to provide input to the planning of project developments. Throughout 2023, all the monitoring stations had operated in supplying environmental quality data to the Department of Environment (DOE).

The following is the distribution of the automatic environmental quality stations for air quality, river water quality and marine water quality in Malaysia.



Rajah 3.2: Taburan Lokasi Stesen Automatik bagi Pengawasan Kualiti Udara, Air Sungai dan Air Marin, 2024
Figure 3.2: Distribution of the Locations for Air, River Water and Marine Water Quality Monitoring Automatic Stations, 2024

Jadual 3.8: Bilangan Stesen Pengawasan Kualiti Alam Sekitar di Malaysia
Table 3.8: Number of Environmental Quality Monitoring Station in Malaysia

KOMPONEN COMPONENT	STESEN AUTOMATIK AUTOMATIC STATION	STESEN MANUAL MANUAL STATION	STESEN BERGERAK MOBILE STATION
Udara / Air	65	14	3
Air Sungai / River Water	30	1353	7
Air Marin / Marine Water	10	388	4
Jumlah Stesen / Total No. of Stations	**105**	**1755**	**14**

Bagi stesen-stesen pengawasan kualiti alam sekitar manual, berikut adalah persampelan manual yang telah dijalankan bagi tahun 2024:

For manual environmental quality monitoring stations, the followings are the number of manual samplings which had been carried out in 2024:

Jadual 3.9: Bilangan Persampelan Manual Tahun 2024
Table 3.9: Number of Manual Samplings in 2024

KOMPONEN COMPONENT	STESEN MANUAL MANUAL STATION	FREKUENSI PERSAMPELAN SAMPLING FREQUENCY	BILANGAN PERSAMPELAN TOTAL NO. OF SAMPLING
Udara / Air	14	Setiap 6 hari / Every 6 days	2158
Air Sungai / River Water	1353	6 kali setahun / 6 times a year	8118
Air Marin / Marine Water	388	6 kali setahun 6 times a year	2268

Stesen pengawasan kualiti udara, selain daripada stesen automatik dan manual, program EQMP ini juga menyediakan stesen pengawasan kualiti udara bergerak automatik bagi iaitu Mobile Continuous Air Quality Monitoring (MCAQM) bagi memenuhi aspirasi penempatan stesen pengawasan kualiti udara di seluruh negara. Sebanyak tiga (3) stesen pengawasan kualiti udara bergerak disediakan dan ditempatkan setiap satu (1) di Semenanjung Malaysia, Sabah dan Sarawak. **Rajah 3.3** menunjukkan stesen pengawasan kualiti udara bergerak yang ditempatkan di Semenanjung Malaysia iaitu di Johan Setia, Klang, Selangor bagi memantau tahap kualiti udara setempat di kawasan tersebut.

Air quality monitoring stations, in addition to automatic and manual stations, the EQMP programme also provides mobile automatic air quality monitoring stations, namely Mobile Continuous Air Quality Monitoring (MCAQM), to meet the aspiration of placing air quality monitoring stations throughout the country. A total of three (3) mobile air quality monitoring stations are provided and stationed, one (1) each in Peninsular Malaysia, Sabah, and Sarawak. **Figure 3.3** shows the mobile air quality monitoring station placed in Peninsular Malaysia, specifically in Johan Setia, Klang, Selangor, to monitor the local air quality level in the area.



Rajah 3.3: Stesen Pengawasan Kualiti Udara Bergerak (MCAQM)
Figure 3.3: Mobile Continuous Air Quality Monitoring Station (MCAQM)

Sepanjang tahun 2024, Bahagian Udara telah menjalankan program/ aktiviti/ latihan di bawah Program EQMP seperti disenaraikan dalam **Jadual 3.10**. Program-program yang dijalankan adalah sebahagian usaha untuk memastikan keberkesanan kerja dan meningkatkan keupayaan pegawai dalam melaksanakan kerja-kerja pengawasan kualiti alam sekitar.

Throughout the year 2024, the Air Division has carried out programmes/activities/training under the EQMP Programme as listed in **Table 3.10**. The programmes conducted are part of the efforts to ensure effectiveness and enhance the capacity of officers in carrying out environmental quality monitoring tasks.

Jadual 3.10: Senarai Program/Aktiviti/Latihan yang Dilaksanakan di bawah Program EQMP Sepanjang Tahun 2024
Table 3.10: List of Programme/Activity/Training Conducted Under the EQMP Programme Throughout 2024

BIL. NO.	TARIKH DATE	PROGRAM / AKTIVITI / LATIHAN PROGRAMME / ACTIVITY / TRAINING	LOKASI LOCATION
1	8/1/2024 (1 hari / 1 day)	Mesyuarat dan pembentangan sistem dan peralatan pelbagai parameter untuk permonitoran kualiti air dan udara / Meeting and presentation of multi-parameter systems and equipment for water and air quality monitoring	Putrajaya
2	11/1/2024 (1 hari / 1 day)	Mesyuarat Program Latihan Environmental Quality Monitoring Programme (EQMP) Tahun 2024 / Environmental Quality Monitoring Programme (EQMP) Training Meeting 2024	Putrajaya
3	24/1/2024 (1 hari / 1 day)	Pembentangan Peralatan Pengawasan Taksiran Fotokimia – Prekursor Ozon Jenama Perkin Elmer oleh Syarikat Tay Scientific Instruments Sdn. Bhd. / Presentation of Photochemical Assessment Monitoring Equipment – Perkin Elmer Brand Ozone Precursor by Tay Scientific Instruments Sdn. Bhd. Company	Putrajaya
4	13/2/2024 (1 hari / 1 day)	Mesyuarat Penyelarasan dan Perbincangan Kerjasama Strategik serta Perkongsian Data Antara Jabatan Pengairan dan Saliran Malaysia (JPS) dengan Jabatan Alam Sekitar (JAS) Coordination Meeting and Discussion on Strategic Cooperation and Data Sharing Between the Malaysian Department of Irrigation and Drainage (JPS) and the Department of Environment (DOE)	Ibu Pejabat Pengairan dan Saliran Malaysia
5	19/2/2024 (1 hari / 1 day)	Sesi Perbincangan Persediaan Bengkel Kedua Penyediaan Blueprint Pengawasan Kualiti Alam Sekitar Kebangsaan Tahun 2025 – 2035 / Discussion Session in Preparation for the Second Workshop on the Preparation of National Environmental Quality Monitoring Blueprint for the Year 2025 - 2035	Putrajaya
6	22/2/2024 – 23/2/2024 (2 hari / 2 days)	Mesyuarat dan Bengkel Kedua bagi Penyediaan Blueprint Pengawasan Kualiti Sekitar Kebangsaan 2025 - 2030 Bil.1/2025 Second Meeting and Workshop for Preparation Blue Print National Environmental Quality Monitoring 2025 – 2035 Bil.1/2024	Bilik Mesyuarat Cempaka, Aras 3, Jabatan Alam Sekitar Putrajaya
7	11/3/2024 (1 hari / 1 day)	Sesi Perbincangan Pelaksanaan Program Lawatan ke Stesen Pengawasan Kualiti Udara, Air Sungai dan Marin Zon Timur pada 27 – 29 Mei 2024 / Discussion Session on the Implementation of the Visit Programme to the Air, River and Marine Water Quality Monitoring Stations in the Eastern Zone on 27 – 29 May 2024	Bilik Mesyuarat Teratai, Aras 4, Jabatan Alam Sekitar Putrajaya
8	15/3/2024 (1 hari / 1 day)	Program Pelaksanaan Test Acceptance Criteria bagi Penempatan Semula Stesen Pengawasan Kualiti Udara Manual MA05W di Taman Pudu Ulu, Cheras, KL / Test Acceptance Criteria Implementation Programme for the Relocation of the MA05W Manual Air Quality Monitoring Station in Taman Pudu Ulu, Cheras, KL	Wilayah Persekutuan Kuala Lumpur
9	29/4/2024 (1 hari / 1 day)	Pemasangan Peralatan Cerapan Pepejal Terampai GRIMM di SK Kampung Johan Setia, Klang, Selangor / Installation of GRIMM Suspended Solid Observation Equipment at SK Kampung Johan Setia, Klang, Selangor	Klang Selangor

Jadual 3.10: Senarai Program/Aktiviti/Latihan yang Dilaksanakan di bawah Program EQMP Sepanjang Tahun 2024
Table 3.10: List of Programme/Activity/Training Conducted Under the EQMP Programme Throughout 2024

BIL. NO.	TARIKH DATE	PROGRAM / AKTIVITI / LATIHAN PROGRAMME / ACTIVITY / TRAINING	LOKASI LOCATION
10	22/4/2024 – 25/4/2024 (4 hari / 4 days)	Latihan di bawah Program Pengawasan Kualiti Alam Sekitar (EQMP): Pengenalan kepada Statistik dan Analisis Data Training under Environmental Quality Monitoring Programme (EQMP): Introduction to Statistics and Data Analysis	Shah Alam, Selangor
11	13/5/2024 – 17/5/2024 (5 hari / 5 days)	Latihan di bawah Program Pengawasan Kualiti Alam Sekitar (EQMP): Pemodelan dan Ramalan Kualiti Udara Menggunakan Hybrid Single-Particle Lagrangian Integrated Trajectory (HYSPLIT) Training under Environmental Quality Monitoring Programme (EQMP): Air Quality Modelling and Forecasting using Hybrid Single-Particle Lagrangian Integrated Trajectory (HYSPLIT)	Shah Alam, Selangor
12	4/6/2024 – 6/6/2024 (3 hari / 3 days)	Latihan di bawah Program Pengawasan Kualiti Alam Sekitar (EQMP): Pemodelan dan Ramalan Kualiti Air Sungai dan Marin Menggunakan Water Quality Analysis Simulation Programme (WASP) / Training under Environmental Quality Monitoring Programme (EQMP): River and Marine Water Quality Modelling and Forecasting using Water Quality Analysis Simulation Programme (WASP)	Shah Alam, Selangor
13	26/6/2024 – 27/6/2024 (2 hari / 2 days)	Bengkel Semakan Draf Blueprint Pengawasan Kualiti Alam Sekitar Kebangsaan Tahun 2025 – 2035 / National Environmental Quality Monitoring Draft Review Workshop 2025 - 2035	Putrajaya
14	1/7/2024 – 5/7/2024 (5 hari / 5 days)	Latihan di bawah Program Pengawasan Kualiti Alam Sekitar (EQMP): Kursus Pengendalian Peralatan Teknikal dan Pengurusan Pangkalan Data bagi Komponen Sungai, Marin dan Udara (Asas) bagi Zon Sabah / Training under Environmental Quality Monitoring Programme (EQMP): Technical Equipment Operation and Database Management Course for River, Marine and Air Components (BASIC) for Sabah Zone	Kota Kinabalu, Sabah
15	9/7/2024 (1 hari / 1 day)	Pembentangan Alatan Teknologi Pengawasan daripada Spacegen Sdn. Bhd. / Presentation on Monitoring Technology Equipment from Spacegen Sdn. Bhd.	Putrajaya
16	9/7/2024 – 12/7/2024 (4 hari / 4 days)	Latihan Keselamatan Dalam Air di bawah Program Pengawasan Kualiti Alam Sekitar (EQMP) / Training of Safety in Water under Environmental Quality Monitoring Programme (EQMP)	Serdang, Selangor
17	12/8/2024 – 16/8/2024 (5 hari / 5 days)	Latihan di bawah Program Pengawasan Kualiti Alam Sekitar (EQMP): Kursus Pengendalian Peralatan Teknikal dan Pengurusan Pangkalan Data bagi Komponen Sungai, Marin dan Udara (Asas) bagi Zon Selatan / Training under Environmental Quality Monitoring Programme (EQMP): Technical Equipment Operation and Database Management Course for River, Marine and Air Components (BASIC) for South Zone	Port Dickson, Negeri Sembilan
18	19/8/2024 (1 hari / 1 day)	Mesyuarat Jawatankuasa *Investigative Sampling* (IS) Sungai Adong di bawah EQMP Tahun 2024 / Sungai Adong Investigative Sampling (IS) Committee Meeting under EQMP 2024	Putrajaya
19	4/10/2024 (1 hari / 1 day)	Mesyuarat Jawatakuasa Asset Replacement Programme (ARP) Bil.1/2024 (Air Sungai & Marin) / Asset Replacement Programme (ARP) Authority Meeting Bil.1/2024 (River & Marine Water)	Putrajaya
20	7/10/2024- 11/10/2024 (5 hari / 5 days)	Latihan di bawah Program Pengawasan Kualiti Alam Sekitar (EQMP): Kursus Pengendalian Peralatan Teknikal dan Pengurusan Pangkalan Data bagi Komponen Sungai, Marin dan Udara (Asas) bagi Zon Utara / Training under Environmental Quality Monitoring Programme (EQMP): Technical Equipment Operation and Database Management Course for River, Marine and Air Components (BASIC) for North Zone	Sungai Petani, Kedah

Jadual 3.10: Senarai Program/Aktiviti/Latihan yang Dilaksanakan di bawah Program EQMP Sepanjang Tahun 2024
Table 3.10: List of Programme/Activity/Training Conducted Under the EQMP Programme Throughout 2024

BIL. NO.	TARIKH DATE	PROGRAM / AKTIVITI / LATIHAN PROGRAMME / ACTIVITY / TRAINING	LOKASI LOCATION
21	14/10/2024 – 18/10/2024 5 hari / 5 days)	Latihan di bawah Program Pengawasan Kualiti Alam Sekitar (EQMP): Kursus Pengendalian Peralatan Teknikal dan Pengurusan Pangkalan Data bagi Komponen Sungai, Marin dan Udara (Asas) bagi Zon Tengah / Training under Environmental Quality Monitoring Programme (EQMP): Technical Equipment Operation and Database Management Course for River, Marine and Air Components (BASIC) for Central Zone	Shah Alam, Selangor
22	4/11/2024 – 8/11/2024 (5 hari / 5 days)	Latihan di bawah Program Pengawasan Kualiti Alam Sekitar (EQMP): Kursus Pengendalian Peralatan Teknikal dan Pengurusan Pangkalan Data bagi Komponen Sungai, Marin dan Udara (Asas) bagi Zon Sarawak / Training under Environmental Quality Monitoring Programme (EQMP): Technical Equipment Operation and Database Management Course for River, Marine and Air Components (BASIC) for Sarawak Zone	Kuching, Sarawak
23	10/11/2024 – 14/11/2024 (2 hari / 2 days)	Latihan di bawah Program Pengawasan Kualiti Alam Sekitar (EQMP): Kursus Pengendalian Peralatan Teknikal dan Pengurusan Pangkalan Data bagi Komponen Sungai, Marin dan Udara (Asas) bagi Zon Timur / Training under Environmental Quality Monitoring Programme (EQMP): Technical Equipment Operation and Database Management Course for River, Marine and Air Components (BASIC) for East Zone	Kuala Terengganu, Terengganu
24	9/12/2024 (1 hari / 1 day)	Mesyuarat Pembentangan Modul Latihan Program Pengawasan Kualiti Alam Sekitar (EQMP) / Environmental Quality Monitoring Program (EQMP) Training Module Presentation Meeting	Putrajaya
25	18/12/2024 (1 hari / 1 day)	Latihan *Display Controller* Bilik Environmental Data Centre (EDC) Environmental Data Centre (EDC) Room Display Controller Training	Putrajaya







▲ Pemasangan Peralatan Cerapan Pepejal Terampai GRIMM di SK Kampung Johan Setia, Klang, Selangor / Installation of GRIMM Suspended Solid Observation Equipment at SK Kampung Johan Setia, Klang, Selangor



▲ Program Pelaksanaan Test Acceptance Criteria bagi Penempatan Semula Stesen Pengawasan Kualiti Udara Manual MA05W di Taman Pudu Ulu, Cheras, KL / Test Acceptance Criteria Implementation Programme for the Relocation of the MA05W Manual Air Quality Monitoring Station in Taman Pudu Ulu, Cheras, KL



▲ Mesyuarat dan Bengkel Kedua bagi Penyediaan Blueprint Pengawasan Kualiti Sekitar Kebangsaan 2025 - 2035 Bil.1/2024 / Second Meeting and Workshop for Preparation Blue Print National Environmental Quality Monitoring 2025 – 2035 Bil.1/2024









▲ Bengkel Semakan Draf Blueprint Pengawasan Kualiti Alam Sekitar Kebangsaan Tahun 2025 – 2035
National Environmental Quality Monitoring Draft Review Workshop 2025 - 2035



▲ Pembentangan Alatan Teknologi Pengawasan untuk Penilaian Peralatan / Presentation Monitoring Technology Equipment for Equipment Evaluation



▲ Lawatan Delegasi Kenya ke Environmental Data Centre EDC / Official Visit from Kenya Delegation to Environmental Data Centre (EDC)



◀ Lawatan Delegasi Kenya ke Environmental Data Centre EDC
Official Visit from Kenya Delegation to Environmental Data Centre (EDC)

Sepanjang tahun 2024, Pusat Data Alam Sekitar telah menerima lawatan rasmi daripada pelbagai agensi seperti disenaraikan dalam **Jadua 3.11**.

Throughout the year 2024, the Environmental Data Centre has received official visits from various agencies as listed in **Table 3.11**.

Jadual 3.11: Senarai Lawatan Rasmi daripada Pihak Luar ke Pusat Data Alam Sekitar (EDC) di bawah Program EQMP Sepanjang Tahun 2024
Table 3.11: List of Official Visits from Outside Parties to Environmental Data Center (EDC) Under the EQMP Programme Throughout 2024

BIL NO.	TARIKH DATE	LAWATAN RASMI DARI AGENSI AWAM / SWASTA OFFICIAL VISITS FROM PUBLIC / PRIVATE AGENCIES
1	17/1/2024	Lawatan Kerja Universiti Kebangsaan Malaysia (UKM) ke Stesen Automatik Sungai, Udara dan Environmental Data Centre (EDC) / Working Visit from National University of Malaysia (UKM) to the River, Air and Environmental Data Centre (EDC) Automatic Stations
2	31/1/2024	Lawatan Delegasi Kenya ke Environmental Data Centre EDC / Official Visit from Kenya Delegation to Environmental Data Centre (EDC)
3	21/2/2024	Sesi Lawatan dan Taklimat ke Environmental Data Centre (EDC) daripada pihak Kementerian Kesihatan Malaysia (KKM) / Visit and Briefing Session to the EDC of the Ministry of Health Malaysia (MoH)
4	13/5/2024	Lawatan ke Stesen Pengawasan Kualiti Air Sungai Automatik CR17M Sungai Kesang bersama-sama Pakar Scieno Tw Sdn. Bhd. (PSTW), Jabatan Pengairan dan Saliran (JPS) dan Jabatan Alam Sekitar (JAS) Negeri Melaka / Visit to the Automatic River Water Quality Monitoring Station CR17M Sungai Kesang with Pakar Scieno Tw Sdn. Bhd. (PSTW), Department of Irrigation and Drainage (JPS) dan Department of Environment (DOE) Melaka State
5	22/7/2024	Lawatan Kerja Anjuran Institut Alam Sekitar Malaysia (E*i*MAS) ke Stesen Pengawasan Kualiti Alam Sekitar EQMP / Working Visit Organized by the Malaysian Institute of Environment (E*i*MAS) to the Environmental Quality Monitoring Programme (EQMP)

Pelaksanaan Investigative Sampling (IS) Sungai dan Marin di Lembangan Sungai Kim-Kim, Johor

Kajian Siasatan (Investigative Sampling) bagi pengawasan kualiti air sungai dan marin di Lembangan Sungai Kim-Kim, Johor telah dilaksanakan pada 13-14 November 2024 di bawah Program EQMP. Kajian ini merangkumi aktiviti pensampelan, analisis makmal, pembangunan model hidrologi dan kualiti air, serta penyediaan inventori punca pencemaran. Pelaksanaan kajian ini bertujuan menyokong pengurusan kualiti air secara bersepadu berdasarkan pendekatan saintifik dan kawalan di punca pencemaran, selaras dengan kehendak Akta Kualiti Alam Sekeliling 1974 dan keperluan pematuhan terhadap objektif kualiti air negara.

Implementation of Investigative Sampling (IS) for River and Marine Waters in the Kim-Kim River Basin, Johor

An Investigative Sampling study for monitoring river and marine water quality in the Kim-Kim River Basin, Johor was carried out on 13–14 November 2024 under the EQMP Programme. This study encompassed sampling activities, laboratory analysis, development of hydrological and water quality models, as well as the preparation of a pollution source inventory. The implementation of this study aims to support integrated water quality management based on scientific approaches and pollution source control, in line with the requirements of the Environmental Quality Act 1974 and compliance with national water quality objectives.



▲ Pengambilan Sampel Air Sungai Menggunakan Van Dorn Sampler / Collection of River Water Samples Using a Van Dorn Sampler



▲ Pengukuran Kelajuan Air Sungai Menggunakan Flowmeter
Measurement of River Water Velocity Using a Flowmeter



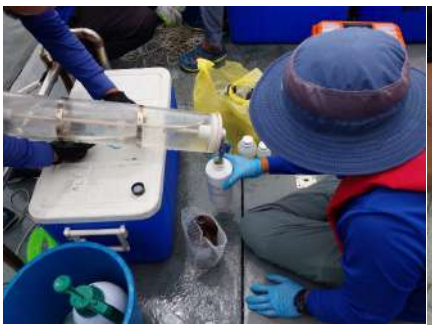
▲ Pengukuran Kualiti Air Sungai Secara In-Situ Menggunakan YSI Multiparameter Sonde
In-Situ Measurement of River Water Quality Using a YSI Multiparameter Sonde

Pelaksanaan Investigative Sampling (IS) Marin di Selat Johor

Kajian Siasatan (Investigative Sampling) bagi pengawasan kualiti air marin di Selat Johor telah dilaksanakan dengan pensampelan parameter Total Suspended Solids (TSS) bagi tiga (3) lapisan kedalaman air, iaitu lapisan permukaan, pertengahan dan dasar. Pensampelan telah dijalankan sebanyak tiga (3) kali pada tahun 2024 iaitu pada bulan Januari, Mei dan September. Hasil daripada kajian ini digunakan dalam analisis dan pelaporan status kualiti air marin di Selat Johor di bawah Program Malaysia-Singapore Joint Committee on Environment (MSJCE).

Implementation of Marine Investigative Sampling (IS) in the Johor Strait

Investigative Sampling for marine water quality monitoring in the Johor Strait has been carried out through the sampling of Total Suspended Solids (TSS) parameters at three (3) water depth layers, namely the surface, middle, and bottom layers. Sampling was conducted three (3) times in 2024, specifically in January, May, and September. The findings from this study are used for the analysis and reporting of the marine water quality status in the Johor Strait under the Malaysia-Singapore Joint Committee on Environment (MSJCE) Programme.



▲ Prosedur Menyimpan Sampel Jumlah Pepejal Terampai dalam botol Pensampelan / Procedure for Storing Total Suspended Solids (TSS) Samples in Sampling Bottles



▲ Menilai Tahap Kekeruhan Air Secara Visual Menggunakan Botol Kaca
Visually Assessing the Turbidity Level of Water Using a Glass Bottle



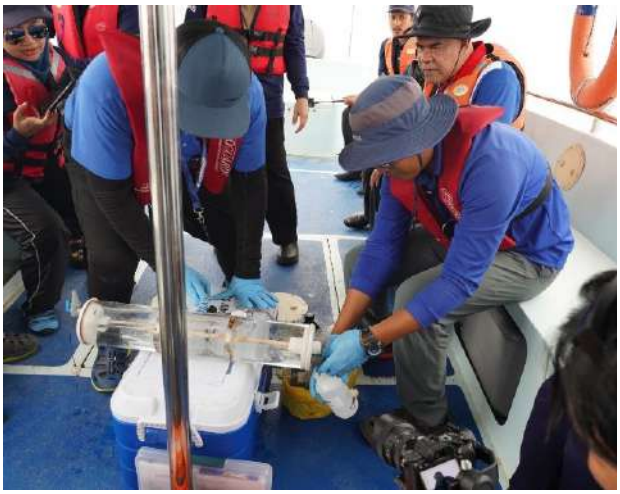
▲ Penyimpanan Rekod Aktiviti Pengawasan Kualiti Air Marin di Selat Johor / Storage of Marine Water Quality Monitoring Activity Records in the Straits of Johor

Program Kawal Seliaan dan Pengauditan Stesen Pengawasan Kualiti Air Marin Pulau Kapas, Terengganu

Pada 29 Ogos 2024, satu program kawal seliaan dan pengauditan telah dijalankan di Stesen Pengawasan Kualiti Air Marin Pulau Kapas, Terengganu oleh Timbalan Ketua Pengarah Operasi JAS Malaysia, Dr. Norhazni binti Mat Sari bersama pegawai JAS Ibu Pejabat dan Negeri Terengganu. Program ini bertujuan menilai pengoperasian stesen manual dan automatik serta proses QA/QC data bagi memastikan keberkesanan peralatan dan kebolehpercayaan data kualiti air marin yang diklasifikasikan sebagai Kelas 1 di bawah Standard Kualiti Air Marin Malaysia (SKAMM). Turut dilaksanakan ialah uji cuba investigative sampling menggunakan stesen boya automatik serta pengawasan bebola tar di pesisir pantai untuk mengesan kesan tumpahan minyak yang telah melalui pelbagai proses iklim.



▲ Pengauditan Aktiviti Pensampelan Bebola Tar di Pesisir Pantai
Auditing of Tar Ball Sampling Activities along the Shoreline



▲ Penilaian Ke Atas Pensampelan Kualiti Air Marin oleh Pasukan Pengauditan JAS / Evaluation of Marine Water Quality Sampling by the DOE Audit Team

Supervisory and Audit Programme for Marine Water Quality Monitoring Station, Pulau Kapas, Terengganu

On 29 August 2024, a supervisory and audit programme was conducted at the Marine Water Quality Monitoring Station in Pulau Kapas, Terengganu by the Deputy Director General of Operations, Department of Environment (DOE) Malaysia, Dr. Norhazni binti Mat Sari, together with officers from DOE Headquarters and the Terengganu State Office. The programme aimed to assess the operations of both manual and automatic stations, as well as the QA/QC data processes, to ensure the effectiveness of equipment and reliability of marine water quality data classified as Class 1 under the Malaysian Marine Water Quality Standard (MMWQS). The programme also included a trial implementation of investigative sampling using an automatic buoy and beach monitoring for tar balls to detect the presence of weathered hydrocarbon spills.



▲ Pemeriksaan Peralatan In-Situ Pengawasan Kualiti Air Marin Automatik / Inspection of In-Situ Automatic Marine Water Quality Monitoring Equipment



▲ Sesi Uji Cuba Penempatan Stesen Boya Automatik
Trial Session for the Placement of Automatic Buoy Stations

Program Pengauditan Stesen Pengawasan Kualiti Udara, Air Sungai dan Marin EQMP Tahun 2024

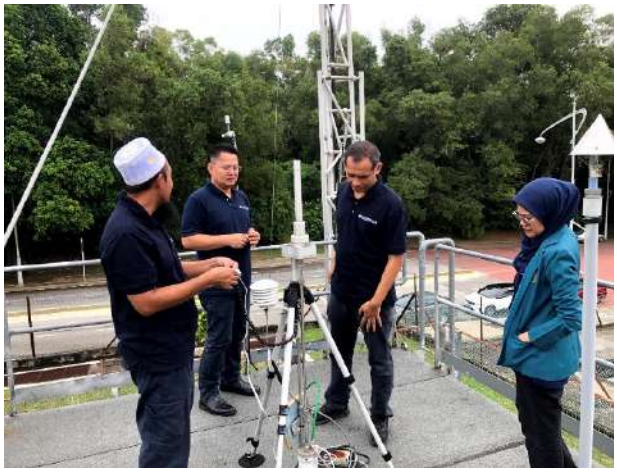
Jabatan Alam Sekitar (JAS) telah melaksanakan Program Pengauditan Stesen Pengawasan Kualiti Air Sungai, Marin dan Udara EQMP Tahun 2024 sebagai inisiatif untuk memastikan semua stesen pengawasan di bawah Program Pengawasan Kualiti Alam Sekitar (EQMP) beroperasi dengan cekap serta mematuhi prosedur teknikal yang telah ditetapkan. Bagi komponen udara, pengauditan melibatkan 20 stesen di seluruh negara yang terdiri daripada 17 stesen automatik dan tiga (3) stesen manual yang terletak di Melaka, Negeri Sembilan, Sarawak, Selangor, Wilayah Persekutuan Kuala Lumpur dan Wilayah Persekutuan Putrajaya. Pengauditan komponen pengawasan air sungai telah dilaksanakan bagi lima (5) stesen automatik dan 15 stesen manual di Sarawak, Sabah, Terengganu dan Pahang manakala empat (4) stesen automatik bagi pengawasan kualiti air marin telah dilaksanakan di Negeri Sembilan, Wilayah Persekutuan Labuan, Sabah dan Sarawak. Program ini dilaksanakan bagi memastikan semua stesen pengawasan berfungsi dengan baik dan data yang dicerap adalah tepat, boleh dipercayai serta mematuhi piawaian Kawalan Kualiti dan Jaminan Mutu (QA/QC) yang ditetapkan. Di samping itu, pengauditan ini turut bertujuan mengenal pasti kelemahan sistem untuk penambahbaikan berterusan, menyokong perancangan strategik kerajaan dalam pengurusan alam sekitar secara mampan, serta membina keyakinan awam terhadap ketelusan dan integriti sistem pemantauan sedia ada. Pelaksanaan program ini secara menyeluruh membuktikan komitmen berterusan JAS dalam memastikan pemantauan kualiti air sungai, marin dan udara dilaksanakan secara telus, berkesan dan berintegriti.

The 2024 EQMP Audit Programme for Air, River and Marine Water Quality Monitoring Stations

The Department of Environment (DOE) has implemented the EQMP 2024 Audit Programme for River, Marine, and Ambient Air Quality Monitoring Stations as an initiative to ensure that all monitoring stations under the Environmental Quality Monitoring Programme (EQMP) operate efficiently and comply with established technical procedures. For the air quality component, the audit involved 20 stations nationwide, comprising 17 automatic stations and three (3) manual stations located in Melaka, Negeri Sembilan, Sarawak, Selangor, the Federal Territory of Kuala Lumpur, and the Federal Territory of Putrajaya. The river water monitoring component covered audits at five (5) automatic stations and 15 manual stations in Sarawak, Sabah, Terengganu, and Pahang, while four (4) automatic marine water quality monitoring stations were audited in Negeri Sembilan, the Federal Territory of Labuan, Sabah, and Sarawak. This programme was carried out to ensure that all monitoring stations function properly and that the data collected is accurate, reliable, and in compliance with the established Quality Assurance and Quality Control (QA/QC) standards. Additionally, the audit aims to identify system weaknesses for continuous improvement, support the government's strategic planning in sustainable environmental management, and build public confidence in the transparency and integrity of the existing monitoring system. The comprehensive implementation of this programme demonstrates DOE's ongoing commitment to ensuring that river, marine, and air quality monitoring is conducted transparently, effectively, and with integrity.



▲ Pengauditan Stesen Pengawasan Kualiti Udara Manual MA04W di Klinik Kesihatan Kuala Lumpur / Auditing of Manual Air Quality Monitoring Station MA04W at Kuala Lumput Health Clinic



▲ Pengauditan Stesen Pengawasan Kualiti Udara Automatik CA17W di SK Presint 18(2) Putrajaya / Auditing of the CA17W Automatic Air Quality Monitoring Station at SK Presint 18(2) Putrajaya



▲ Pengauditan prosedur pensampelan kualiti air sungai manual
Auditing of manual river water quality sampling procedures



▲ Kalibrasi Peralatan Pengawasan Kualiti Air Sungai Manual di Lapangan / Calibration of Manual River Water Quality Monitoring Equipment in the Field



▲ Pengauditan stesen kualiti air sungai automatik
Audit of automatic river water quality monitoring stations



▲ Pemeriksaan Penempatan Sensor Peralatan Kualiti Air Sungai Automatik / Inspection of the Deployment of Automatic River Water Quality Monitoring Sensors

Mesyuarat Jawatankuasa Environmental Data Centre (EDC) Steering Committee dan Project Monitoring Committee (PMC), Program Pengawasan Kualiti Alam Sekitar (EQMP)

Mesyuarat Jawatankuasa EDC Steering Committee dan Project Monitoring Committee (PMC) bagi Program Pengawasan Kualiti Alam Sekitar (EQMP) diadakan tiga (3) kali setahun bagi memantau pelaksanaan dan pengoperasian program berdasarkan Perjanjian Konsesi antara Kerajaan Malaysia (melalui JAS) dan Pakar Scieno TW Sdn. Bhd. (PSTW). Mesyuarat EDC dipengerusikan oleh YBrs. Dr. Norhazni Mat Sari (Timbalan Ketua Pengarah, Operasi JAS), manakala PMC dipengerusikan oleh YBhg. Dato' Wan Abdul Latiff bin Wan Jaffar (Ketua Pengarah Alam Sekitar JAS). Bagi tahun 2024, Mesyuarat EDC telah diadakan

Environmental Data Centre (EDC) Steering Committee and Project Monitoring Committee (PMC) Meeting, Environmental Quality Monitoring Programme (EQMP)

The EDC Steering Committee and Project Monitoring Committee (PMC) meetings for the Environmental Quality Monitoring Programme (EQMP) are held three (3) times a year to monitor the implementation and operation of the programme based on the Concession Agreement between the Government of Malaysia (through the Department of Environment, DOE) and Pakar Scieno TW Sdn. Bhd. (PSTW). The EDC meeting was chaired by YBrs. Dr. Norhazni Mat Sari (Deputy Director General, Operations, DOE), while the PMC meeting was chaired by YBhg. Dato' Wan Abdul Latiff bin Wan Jaffar (Director General of DOE). In 2024, the

pada 26 Februari, 25 Julai dan 29 Oktober, manakala Mesyuarat PMC berlangsung pada 18 Mac, 15 Oktober dan 20 Disember.

EDC meetings were held on 26 February, 25 July, and 29 October, whereas the PMC meetings were held on 18 March, 15 October, and 20 December.



▲ Mesyuarat Project Monitoring Committee (PMC) EQMP
Project Monitoring Committee (PMC) EQMP Meeting



▲ Mesyuarat EDC Steering Committee
EDC Steering Committee

Program Penggantian Aset (ARP) Komponen Air Sungai dan Marin, Program Pengawasan Kualiti Alam Sekitar (EQMP)

Program Penggantian Aset (ARP) merupakan salah satu komponen penggantian peralatan di bawah Perjanjian Konsesi Program Pengawasan Kualiti Alam Sekitar (EQMP) yang bertujuan untuk memastikan prestasi peralatan dan aset termasuk kenderaan yang digunakan dalam pelaksanaan EQMP sentiasa berada dalam keadaan baik. Program penggantian peralatan bagi komponen pengawasan air sungai dan marin telah dimulakan pada tahun 2024 dengan penilaian prestasi dilaksanakan oleh Jawatankuasa Penilaian Prestasi Penggantian Peralatan Komponen Air Sungai dan Marin yang dipengerusikan oleh Pengarah Bahagian Air dan Marin, JAS. Hasil penilaian tersebut telah dibentangkan dan diteliti dalam Mesyuarat Jawatankuasa ARP yang dipengerusikan oleh YBrs. Dr. Norhazni binti Mat Sari, Timbalan Ketua Pengarah Operasi JAS pada 4 Oktober 2024. Penggantian peralatan melibatkan 62 unit YSI multiparameter sonde, 30 unit alat pengukur kedalaman dan halaju air sungai serta 11 unit alat pengukur parameter Polycyclic Aromatic Hydrocarbons (PAHs) yang telah diluluskan dalam Mesyuarat Project Monitoring Committee (PMC) EQMP Bil. 2/2024 pada 15 Oktober 2024 yang dipengerusikan oleh YBhg. Dato' Wan Abdul Latiff bin Wan Jaffar, Ketua Pengarah Alam Sekitar Malaysia. Kesemua peralatan ini akan melalui proses penggantian dan penilaian lanjut pada tahun 2025 dan selanjutnya.

Asset Replacement Program (ARP) for River and Marine Components, Environmental Quality Monitoring Programme (EQMP)

The Asset Replacement Programme (ARP) is a component under the Concession Agreement of the Environmental Quality Monitoring Programme (EQMP) aimed at ensuring the performance of equipment and assets, including vehicles used in the implementation of EQMP, remains in good condition. The equipment replacement programme for the river and marine water monitoring components commenced in 2024, with performance evaluations carried out by the Equipment Replacement Performance Evaluation Committee for River and Marine Water Components, chaired by the Director of the Water and Marine Division, DOE. The evaluation results were presented and reviewed in the ARP Committee Meeting chaired by YBrs. Dr. Norhazni binti Mat Sari, Deputy Director General of Operations, DOE, on 4 October 2024. The approved equipment replacements include 62 units of YSI multiparameter sondes, 30 units of river water depth and velocity measuring devices, and 11 units of Polycyclic Aromatic Hydrocarbon (PAH) measuring instruments, as endorsed in the EQMP Project Monitoring Committee (PMC) Meeting No. 2/2024 on 15 October 2024, chaired by YBhg. Dato' Wan Abdul Latiff bin Wan Jaffar, Director General of Environment Malaysia. All these equipment will undergo the replacement and further evaluation process in 2025 and beyond.



▲ Sensor-Sensor Peralatan Kualiti Air Marin Automatik / Sensors of Automatic Marine Water Quality Monitoring Equipment



▲ Peralatan In-Situ Pengawasan Kualiti Air Marin Sedia Ada Di Stesen Pengawasan Kualiti Air Marin Automatik / Existing In-Situ Marine Water Quality Monitoring Equipment at the Automatic Marine Water Quality Monitoring Station



▲ Penempatan Peralatan Sedia Ada Pengawasan Kualiti Air Sungai Automatik Deployment of Existing Automatic River Water Quality Monitoring Equipment

Pemerkasaan Pengawasan Kualiti Udara di Pasir Gudang, Johor

JAS melalui Kementerian telah melaksanakan pengawasan kualiti udara di Pasir Gudang bermula pada tahun 2019 dan diteruskan sehingga kini.

JAS telah memasang sebanyak 25 buah stesen pengawasan gas toksik Total Volatile Organic Compounds (TVOC) menggunakan Photo Ionization Detector (PID) yang akan mengesan gas TVOC dan memberikan amaran awal kepada pihak berkuasa dan orang awam. Selain daripada 25 stesen PID ini, terdapat 5 stesen meteorologi yang dipasang untuk mendapatkan data meteorologi tempatan bagi tujuan pemodelan dan mengesan penyerakan pencemar udara. **Jadual 3.12** menunjukkan lokasi stesen pengawasan kualiti udara TVOC di Pasir Gudang, Johor.

Empowerment of Air Quality Monitoring at Pasir Gudang, Johor

The DOE through the Ministry has carried out air quality monitoring in Pasir Gudang starting in 2019 and continues until now.

DOE had installed 25 Total Volatile Organic Compounds (TVOC) toxic gases monitoring stations using Photo Ionization Detector (PID) which will trace TVOC gases and will trigger warning system to the authorities as well as to the public. Apart from these 25 PID stations, there are 5 meteorological stations installed to obtain local meteorological data for the purpose of modelling and detect dispersion of the air pollutants. **Table 3.12** shows the location of the air quality monitoring station of TVOC in Pasir Gudang, Johor

Jadual 3.12: Lokasi Stesen Pengawasan Total Volatile Organic Compounds (TVOC)
Table 3.12: Location of Total Volatile Organic Compounds (TVOC) Monitoring Stations

BIL NO.	LOKASI STESEN LOCATION OF STATION
1	Sekolah Kebangsaan Tanjong Langsat
2	Sekolah Kebangsaan Kota Masai 2
3	Sekolah Menengah Kebangsaan Pasir Putih
4	Sekolah Kebangsaan Tanjung Puteri Resort
5	Sekolah Kebangsaan Pasir Puteh
6	Johor Port Berhad
7	Klinik Kesihatan Pasir Gudang

Jadual 3.12: Lokasi Stesen Pengawasan Total Volatile Organic Compounds (TVOC)
Table 3.12: Location of Total Volatile Organic Compounds (TVOC) Monitoring Stations

BIL NO.	LOKASI STESEN LOCATION OF STATION
8	Sekolah Kebangsaan Pasir Gudang (2)
9	Sekolah Menengah Kebangsaan Pasir Gudang 3
10	Klinik Kesihatan Masai
11	Sekolah Menengah Kebangsaan Pasir Gudang 2
12	Stadium Majlis Perbandaran Pasir Gudang
13	Masjid Jamek Pasir Gudang
14	Sekolah Kebangsaan Taman Rinting 3
15	Dewan Muafakat Masai @ Dewanraya Masai
16	Sekolah Kebangsaan Taman Cendana
17	Sekolah Menengah Kebangsaan Bandar Seri Alam
18	Sekolah Menengah Kebangsaan Kota Masai
19	Sekolah Menengah Kebangsaan Taman Scientex
20	Sekolah Kebangsaan Kopok
21	Sekolah Jenis Kebangsaan (Tamil) Ladang Sg Plentong
22	Sekolah Kebangsaan Seri Kota Puteri
23	Sekolah Menengah Kebangsaan Dato' Penggawa Timur
24	Masjid Taman Pasir Putih
25	Sekolah Menengah Kebangsaan Tanjung Puteri Resort



Stesen TVOC (kiri) dan Stesen Meteorologi (kanan) di SMK Tanjung Puteri Resort, Johor
TVOC Station (left) and Meteorology Station (right) at SMK Tanjung Puteri Resort, Johor

PENGUATKUASAAN TERHADAP AKTIVITI PEMBAKARAN TERBUKA

Kes pembakaran terbuka dikesan melalui operasi rondaan mencegah pembakaran terbuka yang dilaksanakan oleh JAS Negeri di kawasan-kawasan yang dikenal pasti sebagai kawasan yang berisiko berlaku kebakaran dan sering menerima aduan daripada orang awam. Di samping itu, maklumat hotspots juga diperolehi melalui satelit yang dipantau

ENFORCEMENT AGAINST OPEN BURNING ACTIVITIES

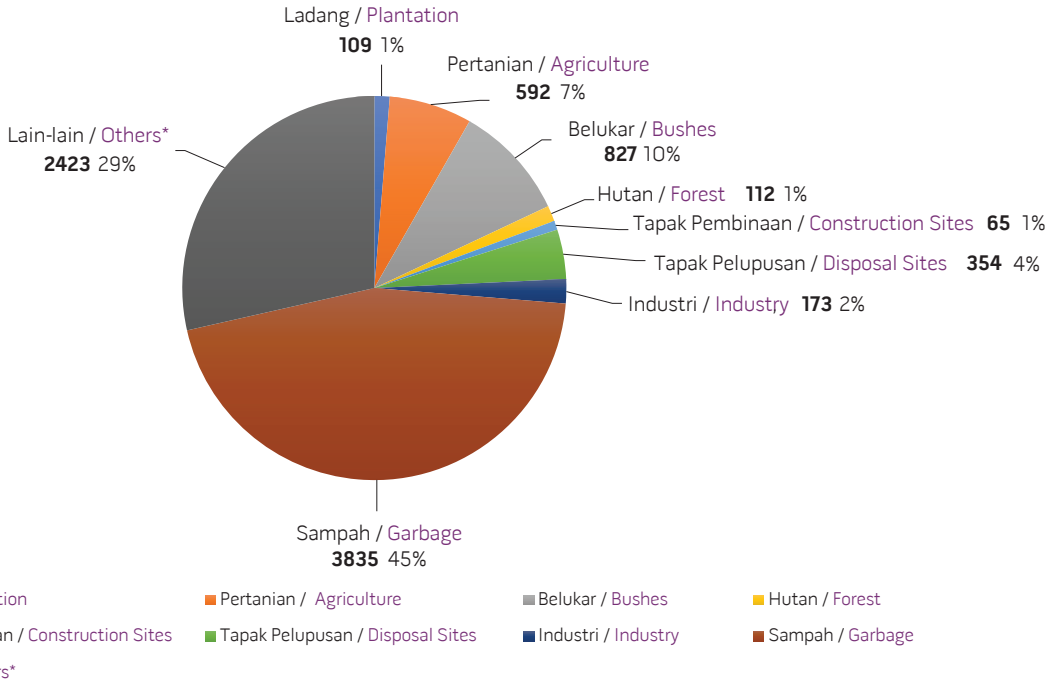
Open burning cases were detected during daily ground surveillance conducted by DOE State Offices at identified fire-prone areas, which received frequent complaints from the public. Besides this, there are also hotspots detected via satellites reported by the ASEAN Specialised Meteorological Centre (ASMC) based in Singapore. In 2024, a total of 1,121 hotspots were

dan dilaporkan oleh ASEAN Specialised Meteorological Centre (ASMC) yang berpusat di Singapura. Pada tahun 2024 sebanyak 1,121 hotspots di seluruh negara telah dilaporkan melalui satelit (**Jadual 3.13**).

Sebanyak 8,490 kes pembakaran terbuka telah dikesan pada tahun 2024 **(Jadual 3.14, Jadual 3.15** dan **Rajah 3.3)** dan dilaporkan oleh setiap JAS Negeri melalui sistem atas talian dalaman JAS iaitu Sistem Elektronik Kawalan Alam Sekitar (e-KAS) di bawah Sub-Modul Pembakaran Terbuka dan Sub-Modul Aduan. Kejadian pembakaran terbuka yang utama sering berlaku adalah pembakaran sampah sarap di kawasan perumahan dan pembakaran sampah sarap di tepi bahu jalan (3,835 kes). Pembakaran bukan sampah sarap seperti daun, dahan pokok, pangkasan pokok, aktiviti keagamaan atau penyembahan yang dikategorikan sebagai lain-lain aktiviti (2,423 kes). Terdapat juga insiden kebakaran daripada aktiviti pertanian (592 kes) dan belukar (827 kes). Pembakaran terbuka sering berlaku terutamanya semasa cuaca panas dan kering iaitu pada bulan Februari (804 kes), Mac (957 kes) dan Julai (1,156 kes). Daripada 8,490 kes pembakaran terbuka tersebut, 160 kes telah dikompaun dengan jumlah kompaun yang dikutip ialah sebanyak RM 157, 250.00 dan 8 kes dikenakan tindakan mahkamah dengan jumlah kutipan denda sebanyak RM135,000.00.

detected via satellites (**Table 3.13**).

A total of 8,490 open burning cases were detected in 2024 **(Table 3.14, Table 3.15** and **Figure 3.3)** and these cases were reported by the DOE State Offices in DOE's internal online system (e-KAS) under the Open Burning Sub-Module and the Complaint Sub-Module. Frequent open burning incidents were found to occur due to activities such as burning of garbage in residential areas and garbage burning by the roadside (3,835 cases). Burning of non-garbage such as leaves, tree branches, yard trimmings and burning of any articles as part of religious rites or worshipping activities which were categorised as other activities (2,423 cases). There were also fire incidents in agricultural areas (592 cases) and bushes (827 cases). Open burning often occurs especially during the hot and dry period in the months of February (804 cases), Mac (957 cases) and July (1,156 cases). Out of the 8,490 open burning cases detected, 160 cases were issued with compounds amounting to RM 157, 250.00 and 8 cases were subject to court action with a total fine of RM135,000.00.



Nota / Note :
*Lain-lain - Pembakaran sampah sarap di kawasan perumahan, tepi jalan dan aktiviti keagamaan/penyembahan
*Others - Burning garbage in residential areas, streets, and religious activities/ worship

Rajah 3.3: Bilangan Kes Pembakaran Terbuka mengikut Kategori, 2024
Figure 3.3: Number of Open Burning Cases by Categories, 2024

Jadual 3.13: Bilangan Kes Hotspots Dikesan Melalui Satelit mengikut Negeri, 2024 (Sumber: ASMC)
Table 3.13: Number of Hotspots Detected through Satellite by States, 2024 (Source: ASMC)

NEGERI / STATE	BULAN / MONTH												
	JAN JAN	FEB FEB	MAC MARCH	APRIL APRIL	MEI MAY	JUN JUNE	JULAI JULY	OGOS AUG	SEP SEPT	OKT OCT	NOV NOV	DIS DEC	JUMLAH TOTAL
Johor	0	3	8	4	0	0	4	1	3	3	0	0	26
Kedah	1	20	30	7	2	1	0	0	1	0	2	1	65
Kelantan	0	3	2	17	26	1	1	1	0	0	1	0	52
Melaka	0	1	0	0	0	0	0	0	1	2	0	0	4
Negeri Sembilan	0	1	1	0	0	0	1	0	0	0	0	0	3
Pahang	0	7	51	53	11	5	14	32	14	11	2	0	200
Perak	0	14	3	5	0	1	2	2	0	1	0	0	28
Perlis	1	14	5	0	0	0	0	0	0	0	0	0	20
Pulau Pinang	0	0	0	0	0	0	0	0	0	0	1	0	1
Sabah	4	55	103	58	56	6	9	9	11	16	12	1	340
Sarawak	7	13	17	13	5	7	92	13	76	15	5	1	264
Selangor	2	2	2	2	2	2	4	0	0	0	0	0	16
Terengganu	2	0	9	29	41	7	5	5	0	4	0	0	102
W.P. Kuala Lumpur / Putrajaya	0	0	0	0	0	0	0	0	0	0	0	0	0
W.P. Labuan	0	0	0	0	0	0	0	0	0	0	0	0	0
Jumlah / Total	**17**	**133**	**231**	**188**	**143**	**30**	**132**	**63**	**106**	**52**	**23**	**3**	**1,121**
Jumlah Keseluruhan / Total: 1,121													

Jadual 3.14: Bilangan Kes Pembakaran Terbuka mengikut Negeri, 2024
Table 3.14: Number of Open Burning Cases by States,2024

NEGERI STATE	LADANG PLANTATION	PERTANIAN AGRICULTURE	BELUKAR BUSHES	HUTAN FOREST	TAPAK PEMBINAAN CONSTRUCTION SITES	TAPAK PELUPUSAN DISPOSAL SITES	INDUSTRI INDUSTRY	SAMPAH GARBAGE	LAIN-LAIN OTHERS*	JUMLAH TOTAL
Johor	17	37	28	4	8	53	25	285	646	1,103
Kedah	12	48	36	4	2	3	8	211	91	415
Kelantan	5	16	59	7	5	2	5	114	49	262
Melaka	1	21	26	0	7	13	9	218	289	584
Negeri Sembilan	4	6	19	3	3	3	6	215	37	296
Pahang	11	33	166	29	6	0	14	118	139	516
Perak	5	39	7	10	14	25	16	191	245	552
Perlis	3	9	19	0	1	2	0	13	19	66
Pulau Pinang	3	46	9	4	2	13	4	591	14	686
Sabah	3	217	122	28	4	0	2	141	47	564
Sarawak	27	64	170	16	1	4	16	172	49	519
Selangor	16	25	50	2	7	223	51	1099	518	1,991
Terengganu	2	13	102	5	1	12	17	70	96	318

Jadual 3.14: Bilangan Kes Pembakaran Terbuka mengikut Negeri, 2024
Table 3.14: Number of Open Burning Cases by States,2024

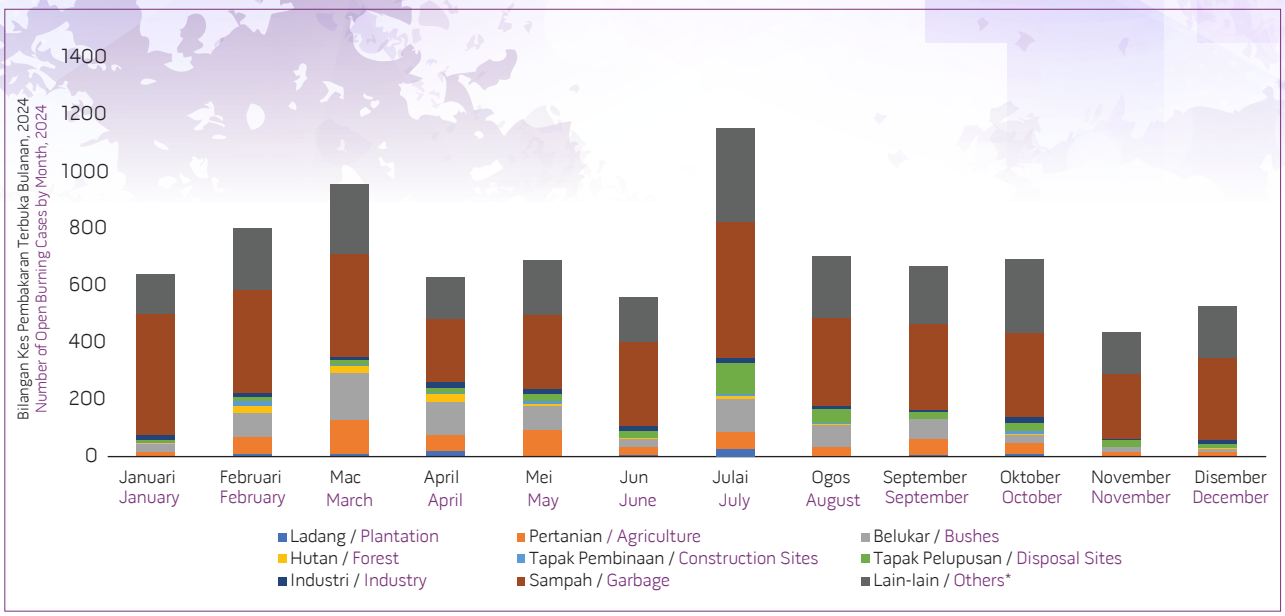
NEGERI STATE	LADANG PLANTATION	PERTANIAN AGRICULTURE	BELUKAR BUSHES	HUTAN FOREST	TAPAK PEMBINAAN CONSTRUCTION SITES	TAPAK PELUPUSAN DISPOSAL SITES	INDUSTRI INDUSTRY	SAMPAH GARBAGE	LAIN-LAIN OTHERS*	JUMLAH TOTAL
W.P. Kuala Lumpur / Putrajaya	0	17	12	0	4	1	0	395	167	596
W.P. Labuan	0	1	2	0	0	0	0	2	17	22
Jumlah Total	**109**	**592**	**827**	**112**	**65**	**354**	**173**	**3,835**	**2423**	**8,490**
Jumlah Keseluruhan / Total: 8,490										

Nota / Note :
*Lain-lain - Pembakaran sampah sarap di kawasan perumahan, tepi jalan dan aktiviti keagamaan/penyembahan
*Others - Burning garbage in residential areas, streets, and religious activities/ worship

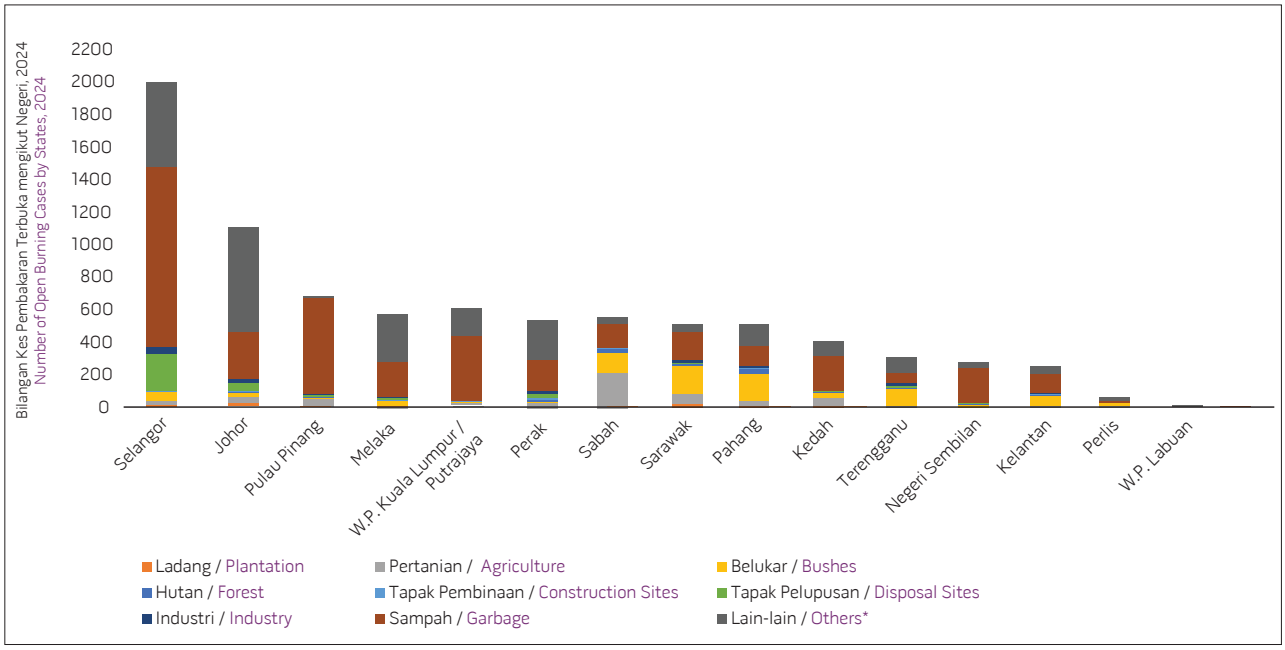
Jadual 3.15: Bilangan Kes Pembakaran Terbuka Bulanan, 2024
Table 3.15: Number of Open Burning Cases by Month, 2024

BULAN MONTH	LADANG PLANTATION	PERTANIAN AGRICULTURE	BELUKAR BUSHES	HUTAN FOREST	TAPAK PEMBINAAN CONSTRUCTION SITES	TAPAK PELUPUSAN DISPOSAL SITES	INDUSTRI INDUSTRY	SAMPAH GARBAGE	LAIN-LAIN OTHERS*	JUMLAH TOTAL
Januari January	2	18	24	3	6	8	17	424	141	643
Februari February	11	58	88	25	14	16	13	366	213	804
Mac / March	10	118	170	21	5	16	14	361	242	957
April / April	19	60	114	28	5	19	17	224	146	632
Mei / May	4	93	83	9	8	25	18	261	192	693
Jun / June	6	31	27	3	4	20	20	296	156	563
Julai / July	29	59	116	13	4	111	17	479	328	1,156
Ogos August	4	30	78	3	5	49	11	310	216	706
September September	7	58	67	1	3	22	9	301	203	671
Oktober October	11	38	31	3	9	29	21	295	259	696
November November	1	18	15	1	2	23	4	228	145	437
December December	5	11	14	2	0	16	12	290	182	532
Jumlah Total	**109**	**592**	**827**	**112**	**65**	**354**	**173**	**3,835**	**2423**	**8,490**
Jumlah Keseluruhan / Total: 8,490										

Nota / Note :
*Lain-lain - Pembakaran sampah sarap di kawasan perumahan, tepi jalan dan aktiviti keagamaan/penyembahan
*Others - Burning garbage in residential areas, streets, and religious activities/ worship



Rajah 3.4: Bilangan Kes Pembakaran Terbuka Bulanan, 2024
Figure 3.4: Number of Open Burning Cases by Month, 2024



Rajah 3.5: Bilangan Kes Pembakaran Terbuka mengikut Negeri, 2024
Figure 3.5: Number of Open Burning Cases by States,2024

PROTOKOL MONTREAL DAN PERLINDUNGAN LAPISAN OZON

Latar belakang

Malaysia telah meratifikasikan Konvensyen Vienna bagi Perlindungan Lapisan Ozon dan Protokol Montreal mengenai Bahan-bahan Pemusnah Lapisan Ozon pada 29 Ogos 1989. Sebagai negara Parti kepada Protokol Montreal, Malaysia telah memenuhi obligasi untuk menghentikan pengimportan klorofluorokarbon (CFC), halon dan karbon tetraklorida (CTC) mulai 1 Januari 2010. Manakala bahan pemusnah ozon seperti Metil Bromida telah dikawal pengimportan mulai 1 Januari 2015 untuk tujuan kegunaan kuarantin dan pra penghantaran melalui kapal.

Pelan Pengurusan Penghapusan HCFC (HPMP) Peringkat I yang bermula pada tahun 2012 telah selesai dilaksanakan pada tahun 2016. Pelaksanaan HPMP Peringkat I berjaya menghapuskan penggunaan HCFC sebanyak 111.85 ODPT. Peringkat II HPMP bermula pada tahun 2017 dan telah selesai dilaksanakan pada tahun 2024. Pelaksanaan HPMP Peringkat II berjaya menghapuskan penggunaan HCFC sebanyak 153.62 ODPT. Penghapusan penggunaan HCFC akan diteruskan dalam HPMP Peringkat III yang telah dilaksanakan pada Oktober 2024 sehingga tahun 2030. Pengimportan HCFC akan dilarang secara mutlak pada tahun 2040.

Dalam Mesyuarat Parti kepada Protokol Montreal Ke-28 di Kigali, Rwanda pada 15 Oktober 2016, Pindaan Kigali (KA) untuk mengurangkan penggunaan dan pengeluaran HFC secara berperingkat telah mendapat persetujuan oleh semua parti. Pindaan Kigali telah mula berkuat kuasa pada 1 Januari 2019. Bahan HFC telah ditambah sebagai bahan kawalan di bawah Protokol Montreal dan jadual pengurangan HFC telah diwujudkan bagi semua negara parti. Malaysia telah meratifikasi Pindaan ini pada 21 Oktober 2020.

Pematuhan Terhadap Protokol Montreal dan Pelaksanaan Pelan Pengurusan Penghapusan HCFC (HPMP)

Malaysia wajib menghapuskan penggunaan HCFC secara berperingkat bermula pada tahun 2013. Bagi mencapai sasaran ini, Pelan Pengurusan Penghapusan HCFC (HPMP) telah dibangunkan bagi menggariskan polisi dan strategi untuk menghapuskan penggunaan HCFC mulai tahun 2012 hingga 2040. **Jadual 3.16** menunjukkan polisi dan strategi perundangan dalam pelaksanaan HPMP.

Pada tahun 2024, jumlah penggunaan bahan HCFC di Malaysia adalah sebanyak 3,332 metrik tan atau bersamaan dengan 184.35 ODPT (Ozone Depleting

MONTREAL PROTOCOL AND PROTECTION OF THE OZONE LAYER

Background

Malaysia ratified the Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol on Substances that Deplete the Ozone Layer on 29 August 1989. As a Party to the Montreal Protocol, Malaysia has complied to the obligation to stop importing chlorofluorocarbon (CFC), halon and carbon tetrachloride (CTC) by 1 January 2010. Other ozone depleting substances such as methyl bromide will only be allowed for quarantine and pre-shipment activities from 1 January 2015.

The Stage I HCFC Phase-out Management Plan (HPMP), initiated in 2012, was successfully concluded in 2016. Through the implementation of Stage I HPMP, the consumption of HCFCs has been effectively phased out, resulting in a reduction of 111.85 ODPT. The Stage II HCFC Phase-out initiated in 2017, was successfully concluded in 2024. Through the implementation of Stage II HPMP, the consumption of HCFCs has been effectively phased out, resulting in a reduction of 153.62 ODPT. HCFC use elimination will continue in HPMP Stage III, starting from October 2024 until 2023. The importation of HCFCs will be completely banned by 2040.

During the 28th Meeting of Parties to the Montreal Protocol in Kigali, Rwanda on 15 October 2016, the parties agreed on the Kigali Amendment (KA) to gradually reduce the consumption and production of HFCs. This agreement became effective on 1 January 2019, adding HFCs as controlled substances under the Protocol and establishing a phasedown plan for HFC reduction. Malaysia ratified the Amendment on 21 October 2020.

Compliance with the Montreal Protocol and Implementation of HCFC Phase-Out Management Plan (HPMP)

As a member party to the Montreal Protocol, Malaysia is obligated to phase out HCFCs in stages starting from 2013. To achieve this goal, Malaysia formulated the HCFC Phase-out Management Plan (HPMP), outlining policies and strategies for the phase-out process from 2012 to 2040. **Table 3.16** presents the policies and regulatory strategies of HPMP.

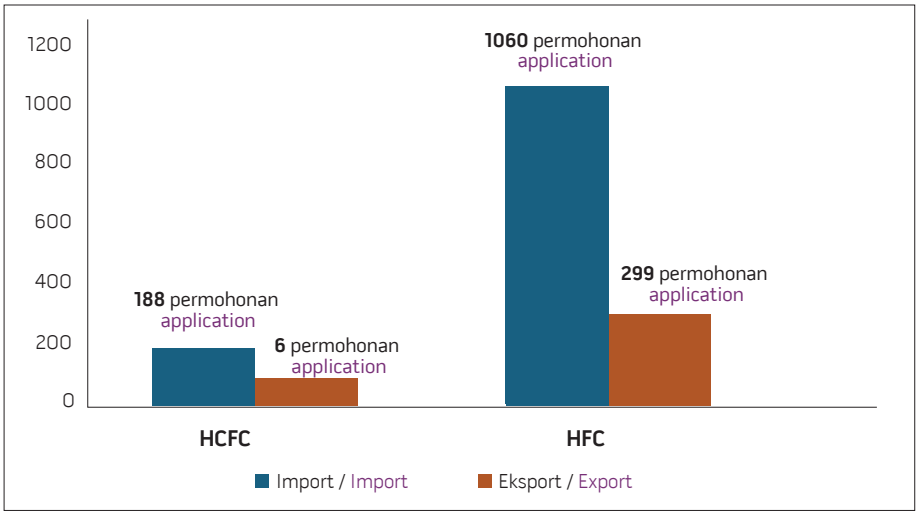
In 2024, Malaysia's consumption of HCFC materials amounted to 3,332 metric tons, equivalent to 184.35 ODPT (Ozone Depleting Potential Tonne). In comparison

Potential Tonne). Jumlah ini dibandingkan dengan garis dasar penggunaan HCFC yang ditetapkan pada tahun 2013 iaitu 515.76 ODPT, Malaysia telah mencapai pengurangan penggunaan HCFC sebanyak 64.25%. **Rajah 3.8** menunjukkan pencapaian Malaysia dalam penghapusan HCFC.

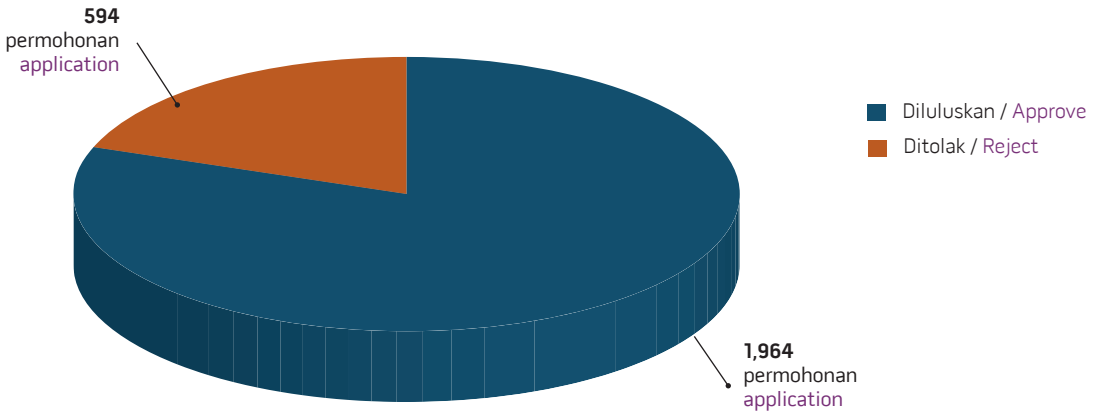
Sejak tahun 2013, JAS mewujudkan sistem permit kelulusan (AP) bagi mengawal dan mengagih kuota import HCFC berdasarkan garis dasar yang ditetapkan. Permohonan AP dan pemprosesan kelulusan dilaksanakan melalui sistem dalam talian, e-Permit yang melibatkan jaringan di antara pengimport/ pengeksport HCFC berdaftar dengan Jabatan Alam Sekitar dan Sistem Maklumat Kastam (SMK), Jabatan Kastam DiRaja Malaysia (JKDM). Pada tahun 2024, sebanyak 188 permohonan untuk mengimport HCFC telah diterima daripada 83 pengimport berdaftar dan 6 permohonan untuk mengeksport HCFC diterima **(Rajah 3.6)**.

to the HCFC consumption baseline set in 2013, which stood at 515.76 ODPT, Malaysia has successfully achieved a significant 64.25% reduction in HCFC consumption. **Figure 3.8** shows Malaysia's achievement of HCFC phase-out.

Since 2013, the DOE implemented the Approved Permit (AP) system to control HCFC imports, and export quotas based on established baselines. AP applications and approvals are processed through the online system known as e-Permit, which facilitates communication and coordination among HCFC importers or exporters registered with the Department of Environment and Customs Information System (SMK), under the jurisdiction of the Royal Malaysian Customs Department (JKDM). In 2024, 188 import applications were received from 83 registered importers, and 6 applications to export HCFC were submitted through e-Permit **(Figure 3.6).**



Rajah 3.6: Bilangan Permohonan Permit Kelulusan Import dan Eksport HCFC dan HFC di Malaysia, 2024
Figure 3.6: Number of Application for Importation and Exportation of Approval Permit for HCFC and HFC in Malaysia, 2024



Rajah 3.7: Bilangan Permohonan Surat Kelulusan bagi Peralatan Elektrik yang Menggunakan HFC, 2024
Figure 3.7: Number of Application of Approval Letter for Electrical Equipment Using HFC, 2024

Dalam usaha untuk meningkatkan pengetahuan dan kemahiran bagi memperkukuhkan kawalan dan pemantauan terhadap Bahan Pemusnah Ozon (BPO), satu lawatan ke China telah diadakan pada 15 - 19 April 2024. Lawatan tersebut melibatkan 5 pegawai JAS dan 3 pegawai Jabatan Kimia Malaysia (JKM). Para peserta diberi pendedahan lanjut berkaitan penganalisaan, pensampelan serta kaedah penguatkuasaan bahan pemusnah ozon.

To enhance knowledge and skills to strengthen the control and monitoring of Ozone Depleting Substances (ODS), a visit to China was held from 15 - 19 April 2024, with 5 officers from DOE and 3 officers from the Department of Chemistry Malaysia (JKM). The participants were exposed to analysis, sampling, and enforcement methods on ozone-depleting substances.

Larangan penggunaan HCFC-141b dalam sektor busa telah bermula pada 1 Januari 2023 dan tiada lagi kuota diperuntukkan bagi pengimportan HCFC-141b dalam sektor busa kecuali 1 ODPT untuk kegunaan dibenarkan penggunaan sebagai bahan pelarut.

The ban on the use of HCFC-141b in the foam sector began on 1 January 2023, and there are no longer any quota allocations or permits for the importation of HCFC-141b for use in the foam sector, except for 1 ODPT is allowed as solvent application.

Bagi memberi pendedahan kepada syarikat tempatan dan pihak industri mengenai kelestarian penggunaan bahan alternatif agen pengembang bagi menggantikan bahan HCFC-141b, satu sesi pembelajaran bagi kelestarian teknologi industri busa telah diadakan di India pada 29 April hingga 2 Mei 2024. Delegasi Malaysia telah didedahkan dengan pelbagai maklumat mengenai penggunaan bahan alternatif agen pengembang dalam penghasilan PU foam dengan mengambil kira faktor-faktor keselamatan, kestabilan dalam Polyol, keterlarutan dalam Polyol, kakisan, takat didih (boiling point) dan kos.

To provide exposure to local companies and industries regarding the sustainability use of alternative blowing agents to replace HCFC-141b, a study tour focused on the sustainability of the polyurethane foam (PU foam) industry technology was held in India from 29 April to 2 May 2024. The Malaysian delegation was exposed to various information on the use of alternative blowing agents in PU foam production, considering factors such as safety, stability in Polyol, solubility in Polyol, corrosion, boiling point, and cost.



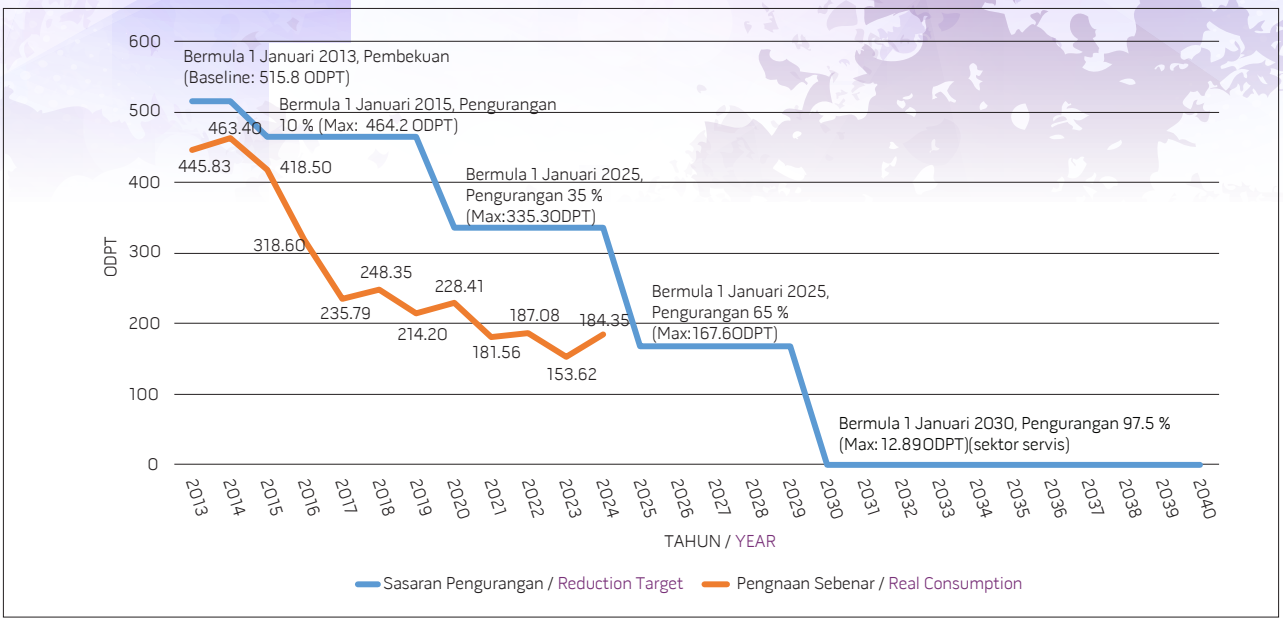
▲ Lawatan Kerja Pembangunan Kapasiti bagi Penguatkuasaan dan Pengujian Bahan Pemusnah Ozon di Moon Environment Technology Co Ltd, China pada 19 April 2024 / Study Tour for Enforcement and Testing of Ozone Depleting Substances at Moon Environment Technology, China on 19 April 2024



▲ Lawatan Kerja Pembangunan Kapasiti Bagi Kelestarian Teknologi Industri Busa (Polyurethane Foam) di Manali Petrochem, India pada 29 April 2024 / Study Tour for the Sustainability of Polyurethane Foam Industry Technology at Manali Petrochem, India on 29 April 2024

Jadual 3.16: Polisi dan Strategi Perundangan bagi Pelan Pengurusan Penghapusan HCFC (HPMP) (2012-2040)
Table 3.16: Policies and Regulatory Strategies for HCFC Phase Out Management Plan (HPMP) (2012-2040)

TAHUN YEAR	POLISI DAN RANGKA KERJA PERUNDANGAN POLICY AND REGULATORY FRAMEWORK
2012	Mewujudkan sistem AP bagi pengagihan kuota import HCFC berdasarkan garis dasar atau purata import 2009/2010 Establishment of AP for HCFC import quota based on national average consumption for 2009/2010
	Meminda perundangan sedia ada untuk mengawal penggunaan, import, pembuatan, pemasangan produk dan peralatan yang menggunakan HCFC Amend existing legislation for control on the use, import, manufacture, assembly or installation of products and equipment using HCFCs
2013	Mewujudkan sistem perlesenan untuk mengeksport semula gas HCFC Licence re-export of HCFC chemicals
	Pelaksanaan sistem AP pada 1 Januari 2013 mengikut Jadual Pembekuan Protokol Montreal Implement Approved Permit (AP) system for HCFC import on 1 January 2013
	Larangan menambah (expansion) atau membina fasiliti pembuatan baru menggunakan HCFC Prohibit expansion of new manufacturing facilities using HCFCs
	Promosi menggunakan bahan alternatif melalui pemberian insentif Promote the use of alternatives through incentives
	Latihan dan pensijilan bagi pekerja yang mengendalikan HCFC Undertake certification of skilled workers trained to handle HCFCs
2015	Larangan bagi membuat, memasang dan mengimport peralatan penyaman udara menggunakan HCFC yang berkuasa 2.5 hp dan ke bawah (untuk penggunaan dalam Malaysia) Prohibit the manufacture, assembly and import of HCFC-based air-con equipment of 2.5hp and below (for use in Malaysia)
	Mewartakan HCFC sebagai bahan terkawal Include HCFCs as restricted gas
	Larangan ke atas pengimportan polyol yang mengandungi HCFC Prohibit import of pre-blended polyols with HCFCs
2020	Larangan membuat, memasang dan mengimport semua barangan dan peralatan yang menggunakan HCFC kecuali bagi penggunaan khas (essential use) Prohibit the manufacture, assembly and import of all products and equipment using HCFCs (except for essential uses)
	Larangan menggunakan HCFC 141b sebagai agen pengembang Prohibit the use of HCFC 141b as blowing agent
	Larangan pembuatan dan pemasangan baru sistem pemadam api yang menggunakan HCFC Prohibit the use of HCFC in the manufacturing and installation of new fire extinguishing systems
2025	Larangan pemasangan baru semua barangan dan peralatan yang menggunakan HCFC No more new installation of products and equipment using HCFCs
2030	Pemberian AP terhad kepada 2.5% daripada jumlah baseline dan hanya untuk sektor servis sahaja AP limited to 2.5% of baseline and for servicing use only
2040	Larangan mutlak pengimportan HCFC mulai 1 Januari 2040 Total ban on the import and use of HCFCs



Rajah 3.8: Pencapaian Penghapusan HCFC di Malaysia
Figure 3.8: HCFC Phase-out Achievement in Malaysia

Selaras dengan obligasi di bawah Protokol Montreal, Malaysia telah mula mengawal pengimportan, pengilangan atau pemasangan kelengkapan penyejukbekuan dan penyaman udara yang berasaskan HCFC pada 1 Disember 2022. Dalam prosedur baharu ini, JAS mengeluarkan surat kelulusan sebagai pra-syarat kepada pengimport atau pengilang untuk memperolehi Certificate of Approval (COA) atau Release Letter (RL) daripada Suruhanjaya Tenaga (ST). Sistem e-Permit (JAS) dinaik taraf untuk berintegrasi dengan sistem e-Kelengkapan (ST) bagi memudahkan proses permohonan secara dalam talian oleh pengimport dan pengilang peralatan. Pada tahun 2024, sebanyak 2,558 permohonan surat kelulusan telah diterima daripada 117 pengilang dan pengimport melalui sistem tersebut. Berdasarkan permohonan-permohonan tersebut, tiada lagi alat penyaman udara atau penyejukbekuan yang berasaskan HCFC dibawa masuk ke Malaysia **(Rajah 3.7)**.

Pelan Pelaksanaan Kigali (KIP) di bawah Protokol Montreal

Pada 21 Oktober 2020, Malaysia telah meratifikasikan Pindaan Kigali yang bertujuan untuk mengurangkan penggunaan Hidrofluorokarbon (HFC) iaitu bahan alternatif kepada bahan pemusnah ozon yang memiliki Potensi Pemanasan Global (GWP) yang sangat tinggi.

Sebagai negara parti Artikel 5 dalam Kumpulan 1, Malaysia wajib untuk membekukan penggunaan HFC pada garis dasar bermula pada 1 Januari 2024 dan

In compliance with obligations under the Montreal Protocol, Malaysia began regulating the importation, manufacture, or installation of HCFC-based refrigeration and air conditioning equipment on 1 December 2022. As part of the new procedure, the DOE mandates the issuance of an approval letter as a prerequisite for importers or manufacturers to acquire a Certificate of Approval (COA) or Release Letter (RL) from the Energy Commission (EC). To streamline the online application process for equipment importers and manufacturers, the DOE's e-Permit system has been enhanced and integrated with the EC's e-Equipment system. In 2024, 2558 applications were received from 117 manufacturers and importers through e-Permit system. Based on these applications, no more HCFC-based air conditioning or refrigeration equipment will be imported into Malaysia **(Figure 3.7)**.

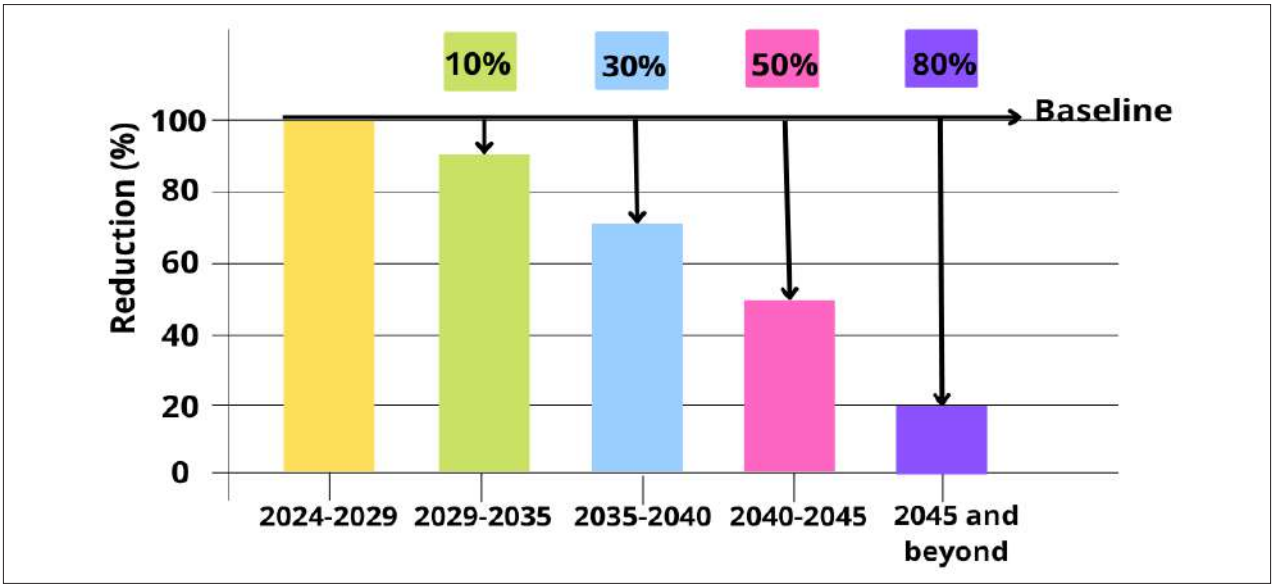
Kigalzi Implementation Plan (KIP) under the Montreal Protocol

On 21 October 2020, Malaysia ratified the Kigali Amendment under the Montreal Protocol for phase-down Hydrofluorocarbons (HFC) which is high Global Warming Potential (GWP) substances that are being used as alternative to HCFC.

As a signatory to the Kigali Amendment, Malaysia falls under Article 5 (Group 1) and is obligated to reduce HFC consumption by 80% from the baseline by the year

mengurangkan penggunaan HFC secara berperingkat sebanyak 80% menjelang tahun 2045. Pengiraan garis dasar penggunaan HFC adalah berdasarkan kepada purata penggunaan HFC bagi tahun 2020 hingga 2022 dan bertambah dengan 65% daripada garis dasar penggunaan HCFC. **Rajah 3.9** menunjukkan Obligasi Pengurangan Penggunaan HFC di bawah Protokol Montreal dan **Jadual 3.17** menunjukkan polisi dan perancangan perundangan bagi Pelan Pelaksanaan Kigali (KIP) Peringkat 1 (2024-2030). Pelan Pelaksanaan Kigali bagi pengurangan penggunaan HFC di Malaysia telah dipersetujui melalui mesyuarat Jemaah Menteri pada Januari 2024.

2045. The freeze baseline is determined by calculating the average HFC consumption between 2020 and 2022, along with an additional 65% from the HCFC baseline. Effective from 1 January 2024, Malaysia will maintain HFC consumption at the freeze baseline level. **Figure 3.9** shows the HFC Consumption Phase-down Schedule Under The Montreal Protocol Obligations and **Table 3.17** presents the policy and legal planning for the Kigali Implementation Plan (KIP) Phase 1 (2024-2030). The Malaysia's KIP for the reduction of HFC consumption was approved through the Cabinet Meeting in January 2024.



Rajah 3.9: Obligasi Pengurangan Penggunaan HFC di bawah Protokol Montreal
Figure 3.9: HFC Consumption Phase-down Schedule under the Montreal Protocol Obligations

Jadual 3.17: Polisi dan Perancangan Perundangan bagi Pelan Pelaksanaan Kigali (KIP) Peringkat 1 bagi Pengurangan HFC (2024-2030)
Table 3.17: Policies and Regulatory Strategies for Kigali Implementation Plan (KIP) Stage I for HFC Reduction (2024-2030)

KLASIFIKASI CLASIFICATION	LANGKAH-LANGKAH DAN PIHAK BERKEPENTINGAN YANG DISASARKAN / TARGETED MEASURES AND STAKEHOLDERS	JANGKAAN TARIKH PELAKSANAAN EXPECTED IMPLEMENTATION DATE
Kawalan Import Import Control	Mengeluarkan kuota import HFC setiap tahun bermula tahun 2024 (pengimport & pengilang) / Issuance of quotas on HFC importation annually starting with 2024 (importers & manufacturers)	1 Jan 2024
Kawalan Import Import Control	Pengurangan melalui sistem kuota dengan mengurangkan import HFC yang nilai GWP tinggi (pengimport & pengilang) / Phasedown through the quota system by decreasing imports of high-GWP HFCs (importers & HFC consumers)	2024
Kawalan Penggunaan Consumption Control	Larangan mengilang dan mengimport peralatan penyejukbekuan komerisal berasaskan HFC (pengedar & pengilang) / Ban on manufacturing with and import of HFC-based stand-alone commercial refrigeration equipment (dealers & manufacturers)	2029

Jadual 3.17: Polisi dan Perancangan Perundangan bagi Pelan Pelaksanaan Kigali (KIP) Peringkat 1 bagi Pengurangan HFC (2024-2030)
Table 3.17: Policies and Regulatory Strategies for Kigali Implementation Plan (KIP) Stage I for HFC Reduction (2024-2030)

KLASIFIKASI CLASIFICATION	LANGKAH-LANGKAH DAN PIHAK BERKEPENTINGAN YANG DISASARKAN / TARGETED MEASURES AND STAKEHOLDERS	JANGKAAN TARIKH PELAKSANAAN EXPECTED IMPLEMENTATION DATE
Kecekapan Tenaga Energy Efficiency	Menyediakan garis panduan untuk prestasi tenaga minimum untuk penyejukbekuan komersial jenis stand-alone (MEPS diambil kira) (pengedar & pengilang) / Guideline for minimum energy performance for stand-alone commercial refrigeration (a MEPS will be considered) (dealers & manufacturers)	2029
Kawalan Penggunaan Consumption Control	Larangan mengilang dan mengimport peti sejuk domestic berasaskan HFC (pengedar & pengilang) / Ban on manufacturing with and import of HFC-based domestic refrigerators (dealers & manufacturers)	2029
Kawalan Penggunaan Consumption Control	Larangan mengilang dan mengimport komponen penyejukan berasaskan R452A, R404A, R134a untuk trak, lori dan pengangkutan penyejukan yang lain. (pengeluar, pemasang, pengimport) / Ban on manufacturing with and import of R-452A, R-404A, R-134a-based refrigerated components for trucks, lorries and other refrigerated transport (manufacturers, assemblers, importers)	2029
Kawalan Penggunaan Consumption Control	Larangan pemasangan chiller berasaskan R407C (kontraktor) Ban on the installation of R-407C based chillers (contractors)	2029
Kawalan Penggunaan Consumption Control	Larangan mengilang dan mengimport penyaman udara jenis split-type berasaskan R407C (pengedar, kontraktor, pengilang) / Ban manufacturing and imports of R-407C split-type AC (dealers, contractors, manufacturers)	2029
Kawalan Penggunaan Consumption Control	Larangan mengilang dan mengimport pam haba berasaskan R407C (pengedar, kontraktor, pengilang) / Ban manufacturing and imports of R-407C heat pumps (dealers, suppliers & manufacturers)	2029
Kawalan Penggunaan Consumption Control	Larangan pemasangan sistem pemadaman api baru berasaskan HFC-23 dan HFC-125 (pengedar, kontraktor, pengilang) / Although the industry has voluntarily ceased installation of new HFC-23 installations, fire protection authorities formalize a ban (or policy equivalent) preventing new fire suppression systems based on HFC-23 and HFC-125 to be installed (suppliers, contractors & manufacturers)	2026
Perolehan Produk Hijau Green Public Procurement	Produk dan peralatan GWP yang lebih rendah akan diambil kira dan dimasukkan dalam "Garis Panduan Perolehan Hijau" berdasarkan kajian teknikal / Additional lower-GWP products and equipment will be considered for addition to "Green Procurement Guidelines" based on technical review	2026
Perolehan Produk Hijau Green Public Procurement	Semak semula spesifikasi untuk perolehan baru kereta api dan bas pengangkutan awam untuk menggunakan sistem penyaman udara yang rendah GWP. / Revise specifications for new procurement of public transportation rail and buses to exclude high-GWP refrigerants in AC systems	2026
Dasar Fiskal Fiscal Policy	Sebarang penambahbaikan dalam langkah fiscal untuk menggalakkan pengimportan alternatif, teknologi dan peralatan GWP rendah akan dinilai Any improvement in fiscal measures to encourage importation of low-GWP alternatives, technologies and equipment will be evaluated	2026
Kawalan Penggunaan dan Pelepasan Emissions and Consumption Control	Pindaan kepada Peraturan Kualiti Alam Sekitar yang berkaitan untuk mengawal penggunaan HFC. Amendment to related Environmental Quality regulations to control the consumption of HFCs	2029

Pada 11 Mac 2024, satu mesyuarat bagi membincangkan pelaksanaan Malaysia KIP Peringkat I bagi pengurangan pengunaan HFC di Malaysia yang dipengerusikan oleh Dr. Norhazni binti Mat Sari, Timbalan Ketua Pengarah (Operasi) Jabatan Alam Sekitar telah diadakan di Putrajaya. Mesyuarat ini telah dihadiri oleh kumpulan pakar dari World Bank yang diketuai oleh Mary-Ellen Foley (Senior Environmental Specialist) dan wakil dari pelbagai agensi kerajaan seperti Kementerian Sumber Asli dan Kelestarian Alam (NRES), Kementerian Kewangan (MOF), Kementerian Ekonomi (KE), Jabatan Akauntan Negara dan sebagainya

On 11 March 2024, a meeting was held in Putrajaya to discuss the implementation of Malaysia's Kigali Implementation Plan (KIP) Stage I for the reduction of HFC consumption in Malaysia. The meeting was chaired by Dr. Norhazni binti Mat Sari, Deputy Director General (Operations) of the Department of Environment. The meeting was attended by a group of experts from the World Bank, which was led by Mary-Ellen Foley (Senior Environmental Specialist), as well as representatives from various government agencies, including the Ministry of Natural Resources and Environmental Sustainability (NRES), the Ministry of Finance (MOF), the Ministry of Economy (KE), the Accountant General's Department, and others.

Sesi libat urus bersama pihak berkepentingan juga turut diadakan pada 14 Ogos 2024 di Putrajaya. Sesi libat urus ini bertujuan untuk membentangkan dokumen yang telah disediakan bagi Environmental & Social Frameworks dan mendapatkan input dari pihak berkepentingan untuk melengkapkan proses penyediaan Perjanjian Geran di bawah pelaksanaan KIP. Persediaan Perjanjian Geran dan semua dokumen berkaitan dijangkakan akan selesai dan ditandatangani pada suku kedua tahun 2025.

A consultation session was also held on 14 August 2024, in Putrajaya. The purpose of this session was to present the draft Environmental & Social Frameworks documents which had been prepared to gather input from the stakeholdres to complete the preparation process for the Grant Agreement under the implementation of the KIP. The preparation of the Grant Agreement and all related documents is expected to be completed and signed in the second quarter of 2025.



▲ Mesyuarat Kigali Implementation Plan (KIP) di Hotel Marriott, Putrajaya pada 11 Mac 2024 / Meeting on the Kigali Implementation Plan (KIP) at Marriott Hotel, Putrajaya on 11 March 2024



▲ Mesyuarat Pelan Pengurusan Kigali (KIP) dan Perundingan Instrumen Alam Sekitar & Sosial di Hotel Moxy, Putrajaya pada 14 Ogos 2024 / Kigali Implementation Plan (KIP) Meeting and Environmental & Social Instruments Consultation at Moxy Hotel, Putrajaya on 14 August 2024

Pembangunan Kapasiti Pegawai Penguatkuasa

Di bawah komponen pengurusan, koordinasi dan kerjasama, JAS telah bekerjasama dengan Jabatan Kastam Diraja Malaysia (JKDM) untuk mengadakan Kursus Kawalan Bahan Pemusnah Ozon bagi tujuan untuk perkongsian maklumat baharu dan peningkatan pembangunan kapasiti penguatkuasa JKDM dan JAS berkaitan pelaksanaan dan pematuhan terhadap Protokol Montreal, peruntukkan undang-undang

Capacity Building of Enforcement Officers

As part of the management, coordination, and cooperation initiative, DOE has collaborated with the Royal Malaysian Customs Department (JKDM) to hold an Ozone Depleting Substances Control Course for the purpose of sharing new information and capacity building improvement for the JKDM and DOE enforcement officers related to the implementation and compliance with the Montreal Protocol. The course

untuk mengawal dan mengawasi pengimportan serta pengeksportan bahan pemusnah ozon.

Pada 12 Disember 2024, JAS bersama JKDM telah menganjurkan bengkel perancangan program kerjasama bagi mempertingkatkan kapasiti pembangunan kawalan dan penguatkuasaan HCFC dan HFC melalui pengimportan dan pengeksportan di bawah pelaksanaan Pelan Pengurusan Penghapusan Peringkat III (HPMP III).

Program Pentauliahan Juruteknik Servis (CSTP) bagi Sektor Penyejukbekuan dan Penyaman Udara (RACs)

Program CSTP dilaksanakan bagi memberi latihan kepada juruteknik servis mengenai amalan terbaik dalam penyelenggaraan sistem penyejukbekuan dan penyaman udara.

Pada tahun 2024, sebanyak 245 siri latihan pensijilan telah dianjurkan oleh Pusat Latihan Bertauliah (ATC) untuk melatih dan mentauliahkan seramai 2,029 juruteknik dalam sektor RAC. Sepanjang tahun 2024, sebanyak 47 kali pengauditan telah dilaksanakan oleh pegawai JAS di ATC semasa latihan pensijilan dijalankan. Ini adalah untuk memastikan latihan dilaksanakan mengikut manual latihan dan Prosedur Operasi Standard (SOP) yang ditetapkan oleh JAS.

Sehingga tahun 2024, secara kumulatif sebanyak 29,440 Juruteknik Servis RAC dan 344 Master Trainer telah ditauliahkan oleh JAS.

Penyertaan Bengkel/ Seminar/ Kursus Antarabangsa

Dua (2) pegawai dari Seksyen Perlindungan Ozon telah menghadiri *Seminar for Asian Countries on Fluorocarbons Life Cycle Management (IFL)* di Bangkok pada 27 - 28 Ogos 2024. Seminar ini memfokuskan kepada inisiatif yang telah dilaksanakan oleh negara-negara Asia Pasifik dalam pengurusan kitaran hidup fluorokarbon yang dilaksanakan di bawah Protokol Montreal. Inisiatif tersebut juga menyumbang kepada pengurangan pelepasan gas rumah kaca.

Pada 13 - 15 November 2024, Joint Thematic Worshop of Southeast Asia and Pacific Island Countries' National Ozone Officers on National Inventory of Banks of Ozone Depleting Substances (ODS)/ Hydroflorocarbon (HFC) and Strategy for Management of Unwanted Controlled Substances telah diadakan di Filipina. Bengkel ini

specifically focused on the regulations and related legislation to control and monitor the import and export of ODS.

On 12 December 2024, the DOE together with the Royal Malaysian Customs Department (JKDM) organized a workshop on program planning for enhancing the capacity in the control and enforcement of HCFC and HFC through import and export activities under the implementation of HCFC Phase-out Management Plan Stage III (HPMP III).

Certification of Service Technician Programme (CSTP) for Refrigeration and Air-Conditioning Sectors (RACs)

The CSTP programme is implemented to provide training for the service technician on the best practices in the servicing and maintenance of refrigeration and air conditioning systems.

In 2024, a total of 245 series of training were organized by the ATCs to train and certify a total of 2,029 technicians in the RAC sector. Throughout 2024, a total of 47 audits were carried out by the DOE's officer at ATC during certification training was conducted. The purpose of the surveillance audits on selected ATCs is to ensure that the training was conducted in accordance with the training manual and Standard Operating Procedure (SOP) as determined by DOE.

Until 2024, cumulatively DOE certified a total number of 29,440 RAC Service Technicians, and 344 Master Trainers.

Participation in International Workshops/ Seminars/ Courses

Two (2) officers from the Ozone Protection Section attended the Seminar for Asian Countries on Fluorocarbons Life Cycle Management (IFL) at Bangkok, from 27 - 28 August 2024. The seminar focused on initiatives implemented by Asia-Pacific countries in managing the life cycle of fluorocarbons under the Montreal Protocol. These initiatives also contribute to the reduction of greenhouse gas emissions.

From 13 - 15 November 2024, the Joint Thematic Workshop of Southeast Asia and Pacific Island Countries' National Ozone Officers on the National Inventory of Banks of Ozone Depleting Substances (ODS)/ Hydrofluorocarbons (HFCs) and Strategy for Management of Unwanted Controlled Substances was

merupakan anjuran bersama Kerajaan Filipina dan United Nations Environment Programme (UNEP) untuk memperkukuhkan kapasiti pegawai-pegawai dari National Ozone Unit (NOU) berkenaan pengurusan bahan-bahan yang dikawal di bawah Protokol Montreal. Bengkel ini dihadiri oleh 2 wakil dari Seksyen Perlindungan Ozon.

held in the Philippines. This workshop which was jointly organized by the Government of the Philippines and the United Nations Environment Programme (UNEP), aimed to strengthen the capacity of officers from the National Ozone Units (NOU) in managing unwanted controlled substances under the Montreal Protocol. The workshop was attended by two (2) representatives from the Ozone Protection Section.

Program dan Kempen Kesedaran

Majlis sambutan Hari Ozon Sedunia 2024 Peringkat Kebangsaan telah diadakan pada 10 Oktober 2024 dan disempurnakan oleh YB Nik Nazmi bin Nik Ahmad, Menteri Sumber Asli dan Kelestarian Alam di International Greentech & Eco Products Exhibition and Conference Malaysia (IGEM), Kuala Lumpur Convention Centre (KLCC). Tema sambutan Hari Ozon Sedunia pada tahun 2024 adalah 'Montreal Protocol: Advancing Climate Action". Buku HPMP Peringkat III (2024 – 2030) yang memaparkan pelan dan strategi pelaksanakan pengurusan penghapusan HCFC Peringkat III telah dilancarkan dalam majlis ini.

Pelbagai aktiviti telah diadakan sepanjang program ini seperti pameran, pocket talk dan pelancaran buku dengan kerjasama bersama pihak industri dan United Nations Development Programme (UNDP) Malaysia. Sepanjang program ini, dianggarkan seramai 1,000 pengunjung telah melawat reruai pameran JAS sepanjang IGEM berlangsung pada 9 - 11 Oktober 2024.

Pelancaran buku 'Sustainable You' telah dirasmikan oleh YBhg. Dato' Wan Abdul Latiff bin Wan Jaffar, Ketua Pengarah Alam Sekitar. Buku ini adalah hasil kerjasama JAS dengan Daikin Malaysia yang bertujuan untuk meningkatkan kesedaran semua lapisan masyarakat mengenai perubahan iklim, jejak karbon, pencemaran udara dan isu-isu alam sekitar lain serta mengamalkan budaya kehidupan lestari. Sesi pembentangan pocket talk turut disampaikan oleh tetamu khas dan duta Daikin, YBhg. Dato' Azizulhasni bin Awang mengenai budaya hidup lestari berdasarkan buku tersebut.

Sambutan kali ini diakhiri dengan program pocket talk, yang merangkumi mesej daripada Inger Anderson, Pengarah Eksekutif United Nations Environment Programme (UNEP), bicara santai bertajuk Montreal Protocol: Advancing Climate Action daripada Dr. Norhazni, Timbalan Ketua Pengarah (Operasi) JAS, HCFC Phase-Out Management Plan Stage III oleh wakil JAS dan Teknologi Alternatif oleh Encik Ng Wen Bin, wakil MASHRAE.

Awareness Programmes and Campaigns

The World Ozone Day 2024 National Level celebration was held on 10 October 2024, and was officiated by YB Nik Nazmi bin Nik Ahmad, the Minister of Natural Resources and Environment, at the International Greentech & Eco Products Exhibition and Conference Malaysia (IGEM) at the Kuala Lumpur Convention Centre (KLCC). The theme for World Ozone Day 2024 is "Montreal Protocol: Advancing Climate Action." The HPMP Phase III (2024–2030) Book which outlines the plans and strategies for the implementation of HCFC phase-out management Phase III, was launched at this event.

Various activities were held throughout this programme, such as exhibitions, pocket talks, and the launch of books in collaboration with the industry and the United Nations Development Programme (UNDP) Malaysia. During the event, an estimated 1,000 visitors attended the DOE exhibition booths during IGEM from 9 - 11 October 2024.

The launch of the book 'Sustainable You' was officiated by YBhg. Dato' Wan Abdul Latiff bin Wan Jaffar, Director General of the Department of Environment. This book, a collaboration between DOE and Daikin Malaysia, aims to raise awareness among all levels of society about climate change, carbon footprints, air pollution, and environmental issues, as well as promote sustainable living practices. Pocket talk session regarding the book was carried out by special guess and also the Ambassador of Daikin Malaysia, YBhg. Dato' Azizulhasni bin Awang.

The celebration concluded with a series of pocket talks, which included messages from Inger Anderson, Executive Director of the United Nations Environment Programme (UNEP), a casual discussion titled Montreal Protocol: Advancing Climate Action by Dr. Norhazni, Deputy Director General (Operations) of JAS, a presentation on the HCFC Phase-Out Management Plan Stage III by a DOE representative, and a session on Alternative Technologies by Mr. Ng Wen Bin, MASHRAE representative.

Hari Ozon Sedunia yang diraikan pada tahun 2024 bukan hanya dilaksanakan di peringkat kebangsaan, malahan pejabat-pejabat JAS Negeri turut sama menjayakan pelbagai program kesedaran perlindungan lapisan ozon antaranya seperti Pertandingan Jingle, Pertandingan Pengumpulan E-Waste, Program Kembara Ozon, Seminar Penipisan Lapisan Ozon, Pertandingan Video Pendek, Kuiz Lindungi Lapisan Ozon, program tanaman pokok serta pameran alam sekitar bersama agensi-agensi seperti Institut Pengajian Tinggi Awam, pertubuhan bukan kerajaan dan pihak swasta.

The World Ozone Day celebration in 2024 was not only held at the national level but also included various ozone protection awareness programmes organized by JAS State offices. Among the programmes conducted were Jingle Competition, E-Waste Collection Competition, Ozone Awareness Caravan, Ozone Layer Depletion Seminar, Short Video Competition, Ozone Protection Quiz, tree planting activities, and environmental exhibitions. These activities were conducted in collaboration with agencies like Public Higher Education Institutes, non-governmental organizations, and private sector partners.



▲ Perasmian Hari Ozon Sedunia 2024 oleh YB Menteri Sumber Asli dan Kelestarian Alam / Opening Ceremony of World Ozone Day 2024 by the YB Minister of Natural Resources and Environment Sustainability



▲ Sambutan Hari Ozon Sedunia 2024 Peringkat Kebangsaan di IGEM, KLCC. / National level Celebration of World Ozone Day 2024 at IGEM, KLCC.



▲ Pameran sempena Sambutan Hari Ozon Sedunia 2024 di IGEM, KLCC / Exhibition in conjunction with the Celebration of World Ozone Day 2024 at IGEM, KLCC



▲ Pelancaran buku 'Sustainable You' Sempena Hari Ozon Sedunia 2024 / The Launch of 'Sustainable You' Book in Conjunction with World Ozone Day 2024



▲ Program Kembara Ozon Bersama Rakan Alam Sekitar Anjuran Jabatan Alam Sekitar Negeri Kelantan pada 20 September 2024 / Ozone Travel Programme with Friends of Environment Organized by Department of Environment Kelantan on 20 September 2024



▲ Sambutan Hari Ozon Sedunia 2024 Anjuran Jabatan Alam Sekitar Negeri Selangor pada 30 Oktober 2024 / Celebration of World Ozone Day 2024 Organized by Department of Environment of Selangor on 30 October 2024

Mesyuarat Gabungan Konferens Parti Kepada Konvensyen Vienna Ke-13 (COP13) & Mesyuarat Parti Kepada Protokol Montreal Ke-36 (MOP36)

Mesyuarat Gabungan COP13 dan MOP36 telah diadakan di Bangkok, Thailand pada 28 - 31 Oktober 2024. Ketua delegasi Malaysia yang menghadiri ke Mesyuarat COP13MOP36 ialah YBhg. Datuk Dr. Ching Thoo A/L Kim, Ketua Setiausaha Kementerian Sumber Asli dan Kelestarian Alam. Delegasi Malaysia yang turut hadir mesyuarat tersebut ialah YBhg. Dato' Wan Abdul Latiff bin Wan Jaffar, Ketua Pengarah Alam Sekitar, Puan Mazrini binti Mohmad dari NRES, Encik Ryan Ooi Chean Weai dan Puan Amy Charlene Wong dari Jabatan Alam Sekitar.

Dalam mesyuarat ini, ketua delegasi telah menyampaikan pencapaian Malaysia dalam pengurusan pelan penghapusan Hidroklorofluorokarbon (HCFC), dan perkembangan terkini pelaksanaan Pindaan Kigali bagi pengurangan penggunaan HFC. Dalam masa yang sama, YBhg. Dato' Wan Abdul Latiff bin Wan Jaffar, Ketua Pengarah Alam Sekitar turut dilantik sebagai Timbalan Pengerusi Bureau Mesyuarat ke-36 MOP kepada Protokol Montreal, mewakili Rantau Asia dan Pasifik.

Semasa mesyuarat COP13MOP36, delegasi Malaysia turut mengadakan Mesyuarat Dua Hala bersama World Bank, UNDP dan United Nations Environment Programme (UNEP). Malaysia menyatakan keperluan untuk meneroka lebih lanjut dan kerjasama bagi menyediakan pembangunan kapasiti dan bantuan teknikal kepada pegawai ozon negara, kastam dan agensi penguatkuasaan berkaitan untuk meningkatkan pengukuhan institusi bagi memastikan pematuhan terhadap obligasi protokol montreal secara berterusan.

Combined Meeting of 13th Meeting of the Conference of the Parties to Vienna Convention (COP13) & 36th Meeting of the Parties to Montreal Protocol (MOP36)

The Combined Meeting of COP13 and MOP36 meeting was held in Bangkok, Thailand, from 28 - 31 October 2024. The head of the Malaysian delegation attending the COP13MOP36 meeting was YBhg. Datuk Dr. Ching Thoo A/L Kim, Secretary-General of the Ministry of Natural Resources and Environmental Sustainability (NRES). Other members of the Malaysian delegation included YBhg. Dato' Wan Abdul Latiff bin Wan Jaffar, Director General of the Department of Environment, Mrs. Mazrini binti Mohmad from the NRES, Mr. Ryan Ooi Chean Weai, and Ms. Amy Charlene Wong from the Department of Environment.

During this meeting, the head of the Malaysian delegation presented Malaysia's achievements in the implementation of the Hydrochlorofluorocarbon (HCFC) Phase-Out Management Plan and the latest progress on the implementation of the Kigali Amendment for the reduction of HFC consumption. At the same time, YBhg. Dato' Wan Abdul Latiff bin Wan Jaffar, Director General of the Department of Environment, was appointed as the Deputy Chair of the Bureau of the 36th MOP Meeting of the Montreal Protocol, representing the Asia-Pacific region.

In the margin of the COP13MOP36 meeting, the Malaysian delegation also held Bilateral Meetings with the World Bank, UNDP, and UNEP. Malaysia expressed the need to further explore and collaborate to provide capacity building and technical assistance to national ozone officers, customs and related enforcement agencies, to enhance institutional strengthening, and to ensure continued compliance with Montreal Protocol obligations.



▲ Gabungan Mesyuarat Konferens Parti kepada Konvensyen Vienna Ke-13 (COP13) & Mesyuarat Parti kepada Protokol Montreal Ke-36 (MOP36) / Combined Meeting of 13th Meeting of the Conference of the Parties to Vienna Convention (COP13) & 36th Meeting of the Parties to Montreal Protocol (MOP36)



▲ Ketua Setiausaha Kementerian Sumber Asli dan Kelestarian Alam Menyampaikan Kenyataan Negara di Mesyuarat COP13 dan MOP36 / Secretary General of Ministry of Natural Resources and Environmental Sustainability Deliver the Country Statement at COP13 & MOP36 Meeting

PENGURUSAN BUANGAN TERJADUAL

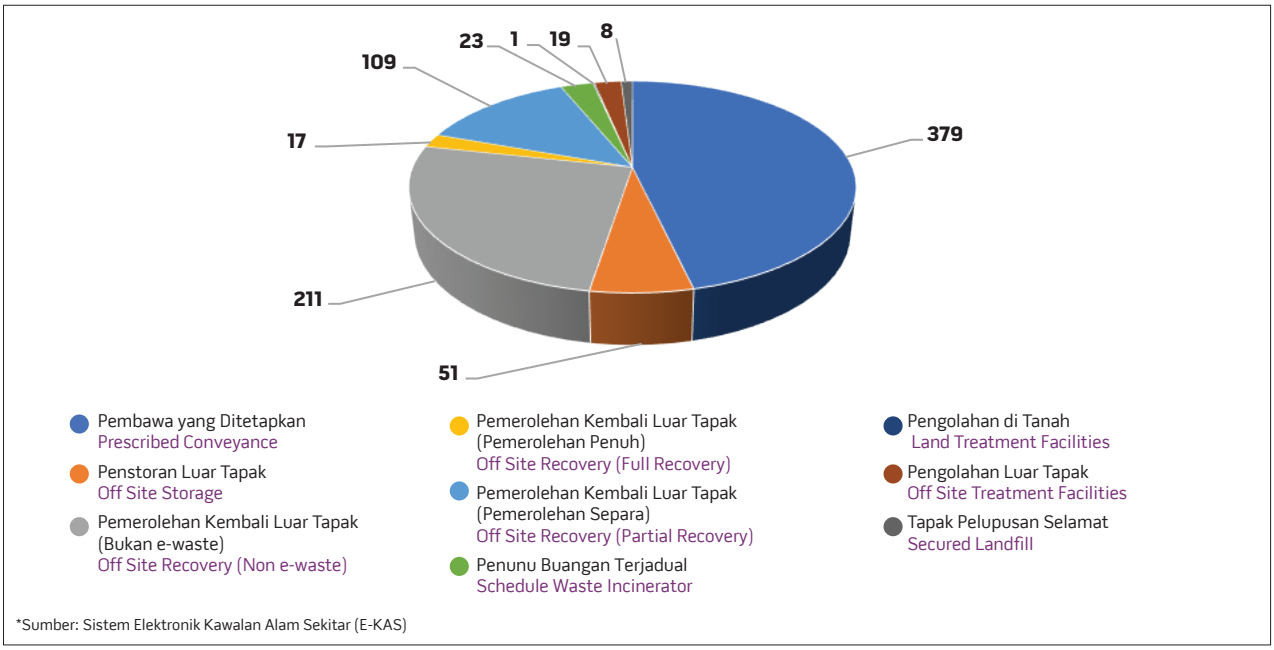
Lesen Premis yang Ditetapkan

Sejumlah 818 lesen telah dikeluarkan kepada kemudahan baru dan sedia ada pada tahun 2024 yang terdiri daripada 211 kemudahan pemerolehan kembali luar tapak bukan e-waste, 17 kemudahan pemerolehan kembali penuh luar tapak bagi e-waste, 109 kemudahan pemerolehan kembali separa luar tapak bagi e-waste, 23 kemudahan penunu buangan terjadual, 19 kemudahan pengolahan luar tapak, 8 kemudahan tapak pelupusan selamat, 51 kemudahan penstoran luar tapak dan sejumlah 379 lesen telah dikeluarkan kepada pembawa yang ditetapkan (**Rajah 3.10** dan **Jadual 3.18**).

SCHEDULED WASTE MANAGEMENT

Licences for Prescribed Premises

A total number of 818 licences were issued for both existing and new facilities in the year 2024 which consists of 211 licences for off-site recovery (non e-waste), 17 licences for off-site full recovery plants (e-waste), 109 licences for off-site partial recovery plants (e-waste), 23 licences for scheduled wastes incinerators, 19 licences for off-site treatment facilities, 8 licences for secured landfills, 51 licences for off-site storage facilities, and a total of 379 licences were issued for prescribed conveyance (**Figure 3.10** and **Table 3.18**).



*Sumber: Sistem Elektronik Kawalan Alam Sekitar (E-KAS)

Rajah 3.10: Jumlah Lesen Dikeluarkan
Figure 3.10: Number Of Licences Issued

Jadual 3.18: Lesen-Lesen yang Dikeluarkan bagi Kemudahan Pemerolehan Kembali, Pengolahan & Pelupusan Buangan Terjadual yang Diluluskan oleh Jabatan Alam Sekitar, 2024
Table 3.18: Licences Issued for Recovery Facilities Processing Hazardous Waste Disposal Approved by the Department of Environment, 2024

KEMUDAHAN FACILITIES	JUMLAH LESEN DIKELUARKAN MENGIKUT NEGERI BAGI TAHUN 2024 / NUMBER OF LICENCES ISSUED BY STATE															
	JOHOR	KEDAH	KELANTAN	MELAKA	N. SEMBILAN	PAHANG	PERAK	PERLIS	PULAU PINANG	SABAH	SARAWAK	SELANGOR	TERENGGANU	WPKL	LABUAN	JUMLAH
Pembawa yang Ditetapkan Prescribed Conveyance	65	22	4	23	22	7	35	3	59	10	31	78	9	5	6	379
Penstoran Luar Tapak Off Site Storage	2	0	1	3	1	2	3	0	1	7	24	1	1	0	5	51

Jadual 3.18: Lesen-Lesen yang Dikeluarkan bagi Kemudahan Pemerolehan Kembali, Pengolahan & Pelupusan Buangan Terjadual yang Diluluskan oleh Jabatan Alam Sekitar, 2024
Table 3.18: Licences Issued for Recovery Facilities Processing Hazardous Waste Disposal Approved by the Department of Environment, 2024

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	JOHOR	KEDAH	KELANTAN	MELAKA	N. SEMBILAN	PAHANG	PERAK	PERLIS	PULAU PINANG	SABAH	SARAWAK	SELANGOR	TERENGGANU	WPKL	LABUAN	JUMLAH
Pemerolehan Kembali Luar Tapak (Bukan e-waste Off Site Recovery (non e-waste)	37	12	1	15	17	8	26	1	27	4	5	51	5	0	2	211
Pemerolehan Kembali Luar Tapak (Pemerolehan Penuh) Off Site Recovery (Full Recovery)	1	0	0	0	2	0	1	0	7	0	1	5	0	0	0	17
Pemerolehan Kembali Luar Tapak (Pemerolehan Separa) Off Site Recovery (Partial Recovery)	25	9	3	7	6	0	3	2	22	1	4	19	3	5	0	109
Penunu Buangan Terjadual Schedule Waste Incinerator	7	0	0	0	2	2	2	0	1	0	4	2	2	0	1	23
Pengolahan di Tanah Land Treatment Facilities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Pengolahan Luar Tapak Off Site Treatment Facilities	0	1	0	1	5	0	3	0	0	2	4	2	0	0	1	19
Tapak Pelupusan Selamat Secured Landfill	1	1	0	0	1	1	0	0	0	0	2	1	1	0	0	8
Bil. Lesen / No. of Licence	135	47	9	49	56	20	73	6	117	24	75	159	21	10	16	818
Bil. Premis / No. of Premise	70	24	4	22	16	14	27	3	50	10	37	77	9	5	9	377

BENGKEL SUB-SERANTAU MENGENAI KECEMASAN BAHAN KIMIA DAN SISA BERBAHAYA

Pada 14 - 17 Oktober 2024, En. Norhisham bin Abdul Hamid dari Seksyen Pelesenan telah menghadiri Sub-regional Workshop on Hazardous Chemicals and Wastes Emergencies di Jakarta, Indonesia. Bengkel ini juga telah dihadiri bersama dengan wakil dari Jabatan Alam Sekitar Negeri Selangor iaitu En. Muhamad Yuzwan bin Muhamad Yunus. Wakil dari Malaysia telah membentangkan polisi dan dasar negara

SUB-REGIONAL WORKSHOP ON HAZARDOUS CHEMICALS AND WASTES EMERGENCIES

On 14 - 17 October 2024, Mr. Norhisham bin Abdul Hamid from the Licensing Section attended the Sub-regional Workshop on Hazardous Chemicals and Wastes Emergencies in Jakarta, Indonesia. A representative from the Selangor State Department of Environment, Mr. Muhamad Yuzwan bin Muhamad Yunus, also attended this workshop. The representative from

berkaitan pengurusan bahan kimia serta pengimportan dan pengeksportan buangan terjadual mengikut Konvensyen Basel.

Di dalam bengkel tersebut, negara-negara peserta dapat berkongsi maklumat dan tindakan kawalan pencemaran bagi kes-kes yang melibatkan pencemaran bahan kimia di negara masing-masing. Selain itu sesi hands on berkenaan tindak balas bagi kes tumpahan kimia telah dijalankan bagi menunjukkan kesediaan dari segi peralatan, tenaga kerja dan komunikasi semasa menangani kes-kes kecemasan tersebut.

Pada masa yang sama, bengkel ini juga mendedahkan kepada peserta-peserta bengkel mengenai penggunaan Flash Environmental Assessment Tool (FEAT 2.0) bagi mengenal pasti bahaya, kuantiti pencemaran serta kesan pendedahan yang telah berlaku dalam insiden yang melibatkan pencemaran bahan kimia.

Malaysia presented national policies and guidelines related to chemical management and the import and export of scheduled wastes under the Basel Convention.

In the workshop, participating countries were able to share information and pollution control actions for cases involving chemical pollution in their respective countries. In addition, a hands-on session on how to response to chemical spill cases was conducted to demonstrate readiness regarding equipment, manpower, and communication when dealing with such emergency cases.

At the same time, this workshop also exposed workshop participants to use the Flash Environmental Assessment Tool (FEAT 2.0) to identify hazards, quantities of pollution, and the effects of exposure that have occurred in incidents involving chemical pollution.



▲ Peserta Sub-regional Workshop on Hazardous Chemicals and Wastes Emergencies/
Sub-regional Workshop on Hazardous Chemicals and Wastes Emergencies Participant

PENYERTAAN LATIHAN ANTARABANGSA - 13TH ANALYSIS TRAINING OF POPS CHEMICAL IN EAST ASIAN COUNTRIES NATIONAL INSTITUTE OF ENVIRONMENTAL RESEARCH (NIER), INCHEON, KOREA SEPTEMBER 2024

Pada bulan September 2024, dua (2) orang pegawai dari Bahagian Bahan Berbahaya, Jabatan Alam Sekitar Putrajaya iaitu Puan Nur Ain Husna binti Amiruddin dan Puan Norsyazwani binti Che Mohamed telah menghadiri 13th Analysis Training of POPs Chemical in East Asian Countries, anjuran National Institute of Environmental Research (NIER), Ministry of Environment Korea di Incheon, Korea.

Latihan ini bertujuan memberikan pendedahan teknikal berkaitan aspek pengurusan dan pensampelan bahan pencemar organik, Persistent Organic Pollutants

PARTICIPATION IN INTERNATIONAL TRAINING - 13TH ANALYSIS TRAINING OF POPS CHEMICALS IN EAST ASIAN COUNTRIES NATIONAL INSTITUTE OF ENVIRONMENTAL RESEARCH (NIER), INCHEON, KOREA SEPTEMBER 2024

In September 2024, two (2) officers from the Hazardous Substances Division of the Department of Environment (DOE) Putrajaya, namely Ms. Nur Ain Husna binti Amiruddin and Ms. Norsyazwani binti Che Mohamed, participated in the 13th Analysis Training of POPs Chemicals in East Asian Countries organized by the National Institute of Environmental Research (NIER) under the Ministry of Environment, Korea. The training was held in Incheon, Korea.

The objective of this training was to provide technical exposure on the management and sampling of Persistent Organic Pollutants (POPs), particularly for

(POPs), terutamanya kepada negara-negara yang masih belum meratifikasi Konvensyen Stockholm. Di samping itu, latihan ini juga berfungsi sebagai platform kerjasama serantau bagi mengukuhkan rangka kerja pengurusan POPs secara lebih bersepadu.

Pada hari pertama latihan, sesi dimulakan dengan ucapan pembukaan oleh Dr. Sun Kyoung Shin dari NIER, diikuti dengan pengenalan kepada keseluruhan modul latihan oleh Dr. In-Young Chung. Kemudian, sesi diteruskan dengan pembentangan oleh wakil negara-negara Parti kepada Konvensyen Stockholm seperti Republik Korea, Jepun dan Malaysia, serta penyertaan institusi penyelidikan seperti UNIST, Universiti Sogang dan Eurofins Korea. Perkongsian ini memfokuskan kepada pengalaman dan pendekatan teknikal negara-negara tersebut dalam pelaksanaan pemantauan POPs.

Hari kedua latihan tertumpu kepada aktiviti amali dan lawatan tapak ke Korea Environment Corporation di Cheongna Resource Environment Centre. Objektif utama lawatan ini adalah untuk memberi pendedahan kepada operasi makmal yang dilantik sebagai pusat pemantauan kebangsaan POPs di Korea. Para peserta turut melaksanakan aktiviti pensampelan gas secara langsung daripada punca pelepasan (stationary source emission gas sampling), yang merupakan komponen penting dalam pemantauan pelepasan dioksin ke atmosfera.

Seterusnya, pada hari ketiga, latihan diteruskan dengan aktiviti makmal yang melibatkan proses pengekstrakan dan penulenan sampel dioksin daripada gas pelepasan melalui kaedah pra-rawatan. Sesi latihan diakhiri dengan pengenalan kepada kaedah analisis instrumental dan pengkuantitian menggunakan teknologi High Resolution Gas Chromatography/High Resolution Mass Spectrometry (HRGC/HRMS), yang merupakan pendekatan analitik berketepatan tinggi dalam pengesanan kepekatan POPs.

Penyertaan pegawai Jabatan dalam latihan ini telah memberi manfaat besar dari segi pemantapan kompetensi teknikal dan pemahaman terhadap standard antarabangsa berkaitan pemantauan POPs. Selain itu, latihan ini juga telah membuka ruang kerjasama strategik antara negara serantau serta menyokong usaha negara dalam menepati komitmen di bawah Konvensyen Stockholm. Pengetahuan dan kemahiran yang diperoleh melalui latihan ini adalah selaras dengan usaha berterusan Jabatan dalam mempertingkatkan kapasiti teknikal pemantauan bahan pencemar berbahaya di peringkat nasional.

countries that have not yet ratified the Stockholm Convention. In addition, the training served as a regional cooperation platform to strengthen the integrated framework for POPs management across East Asian countries.

On the first day of the training, the session began with an opening speech by Dr. Sun Kyoung Shin from NIER, followed by an overview of the training modules delivered by Dr. In-Young Chung. Subsequent sessions featured presentations by representatives from parties to the Stockholm Convention, including the Republic of Korea, Japan, and Malaysia, as well as participation from research institutions such as UNIST, Sogang University, and Eurofins Korea. These sessions focused on the countries' experiences and technical approaches in implementing POPs monitoring programmes.

The second day of the training focused on hands-on activities and a site visit to the Korea Environment Corporation at the Cheongna Resource Environment Centre. The main objective of the visit was to observe the operations of a laboratory designated as the national monitoring centre for POPs in Korea. Participants also conducted on-site sampling of stationary source emission gases, which is a crucial component in monitoring dioxin emissions into the atmosphere.

On the third day, the training continued with laboratory activities involving the extraction and purification of dioxin samples from emission gases through pre-treatment procedures. The final session of the day introduced participants to instrumental analysis and quantification using High Resolution Gas Chromatography / High Resolution Mass Spectrometry (HRGC/HRMS), which is a highly precise analytical technique used to detect the concentration of POPs.

The participation of DOE officers in this training has provided significant benefits in strengthening technical competencies and understanding of international standards related to POPs monitoring. Moreover, the training has opened opportunities for strategic regional cooperation and supported Malaysia's efforts in fulfilling its obligations under the Stockholm Convention. The knowledge and skills gained through this programme are in line with the Department's continuous efforts to enhance national technical capacity in monitoring hazardous pollutants.









◂ Kompilasi Gambar Semasa Sesi Latihan di Korea / Compilation of Pictures during the Training Session in Korea

MESYUARAT KEEMPAT BELAS OPEN-ENDED WORKING GROUP OF THE BASEL CONVENTION (OEWG-14)

The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal telah diterima pakai pada 22 Mac 1989 dan mula berkuat kuasa pada tahun 1992. Peruntukan konvensyen ini tertumpu kepada matlamat utama berikut:

i. Mengurangkan penjanaan buangan berbahaya dan menggalakkan pengurusan buangan berbahaya secara mesra alam, tanpa mengira lokasi pelupusan;

ii. Menghadkan pergerakan merentas sempadan buangan berbahaya kecuali jika ia dianggap selaras dengan prinsip pengurusan secara mesra alam; dan

iii. Mewujudkan satu sistem kawal selia yang diguna pakai bagi kes-kes di mana pergerakan merentas sempadan dibenarkan.

THE FOURTEENTH MEETING OF THE OPEN-ENDED WORKING GROUP OF THE BASEL CONVENTION (OEWG-14)

The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal was adopted on 22 March 1989 and entered into force in 1992. The provisions of the Convention centre around the following principal aims to:

i. Reduce hazardous waste generation and the promotion of environmentally sound management of hazardous wastes, wherever the place of disposal;

ii. Restrict the transboundary movements of hazardous wastes except where it is perceived to be in accordance with the principles of environmentally sound management; and

iii. Develop a regulatory system applying to cases where transboundary movements are permissible.

Malaysia telah meratifikasi konvensyen ini sejak 8 Oktober 1993 dan ia mula berkuatkuasa pada 6 Januari 1994. Sejak itu, Malaysia telah terlibat secara aktif dalam mesyuarat, libat urus dan latihan berkaitan Konvensyen Basel termasuk mesyuarat Open-ended Working Group (OEWG).

OEWG, salah satu badan subsidiari di bawah Konvensyen Basel, telah diberikan mandat berikut melalui keputusan VI/36 (Institutional arrangements) yang diterima pakai semasa Mesyuarat Keenam Conference of Parties (COP) kepada Konvensyen Basel:

i. Membantu COP dalam membangunkan dan sentiasa menyemak pelaksanaan pelan kerja Konvensyen Basel, dasar operasi khusus dan keputusan yang telah diambil oleh COP untuk pelaksanaan Konvensyen Basel, seperti yang dinyatakan dalam Artikel 15;

ii. Menimbangkan dan memberi nasihat kepada COP mengenai isu-isu berkaitan dasar, teknikal, saintifik, perundangan, institusi, pentadbiran, kewangan, belanjawan dan aspek-aspek lain pelaksanaan Konvensyen Basel dalam bajet yang diluluskan, termasuk mengenal pasti keperluan khusus pelbagai rantau dan subrantau untuk latihan dan pemindahan teknologi serta meneliti kaedah bagi memastikan penubuhan dan fungsi Basel Convention Regional Centres for Training and Technology Transfer;

iii. Menyediakan pelan kerja untuk dipertimbangkan oleh COP;

iv. Melaporkan kepada COP mengenai aktiviti-aktiviti yang telah dilaksanakan di antara mesyuarat-mesyuarat COP.

Mesyuarat Keempat Belas Open-ended Working Group of the Basel Convention (OEWG-14) telah diadakan pada 25 – 28 Jun 2024 di Geneva, Switzerland dan telah dihadiri oleh Malaysia bagi membincangkan isu-isu berkaitan pengurusan bahan kimia dan buangan. Selain itu, mesyuarat ini juga menjadi platform untuk mempertimbangkan dan memberi panduan terhadap intersessional work dalam usaha memperkemaskan dokumen-dokumen berkaitan menjelang Mesyuarat Ketujuh Belas COP kepada Konvensyen Basel.

Sepanjang mesyuarat tersebut, beberapa isu dan agenda utama telah dibincangkan seperti garis panduan teknikal, pelaporan negara, pendekatan elektronik bagi notifikasi dan dokumen pergerakan, pertimbangan lanjut mengenai sisa plastik, rangka kerja strategik, usaha penambahbaikan Prior Informed Consent (PIC), memberikan penjelasan undang-undang yang lebih lanjut, kerjasama antarabangsa serta program kerja.

Malaysia has ratified the convention since 8 October 1993 and entered into force on 6 January 1994. Since then, Malaysia has been actively involved in meetings, engagements, and trainings regarding the Basel Convention including the Open-ended Working Group (OEWG) meeting.

The OEWG, one of the subsidiary bodies of the Basel Convention, was given the following mandate by decision VI/36 (Institutional arrangements), adopted by the Sixth Meeting of the Conference of the Parties (COP) to the Basel Convention to:

i. Assist the Conference of the Parties in developing and keeping under continuous review the implementation of the Convention's work plan, specific operational policies and decisions taken by the Conference of the Parties for the implementation of the Convention, as specified in Article 15;

ii. Consider and advise the Conference of the Parties on issues relating to policy, technical, scientific, legal, institutional, administration, finance, budgetary and other aspects of the implementation of the Convention within the approved budget, including identification of the specific needs of different regions and subregions for training and technology transfer and to consider ways and means of ensuring the establishment and functioning of the Basel Convention Regional Centres for Training and Technology Transfer;

iii. Prepare its work plan for consideration by the Conference of the Parties;

iv. Report to the Conference of the Parties on the activities it has carried out between meetings of the Conference of the Parties.

The Fourteenth Meeting of the Open-ended Working Group of the Basel Convention (OEWG-14) was held from 25 – 28 June 2024 in Geneva Switzerland which Malaysia attended to discuss on the issues related to chemicals and waste management. In addition, the meeting was an opportunity to consider and provide guidance on intersessional work to refine the relevant documents in advance of the Seventeenth Meeting of the Conference of the Parties to the Basel Convention.

During the meetings, several key issues and agendas had been discussed such as technical guidelines, national reporting, electronic approaches to the notification and movement documents, further consideration of plastic waste, strategic framework, work to improve functioning of Prior Informed Consent (PIC), providing further legal clarity, international cooperation, and work programme.

PERSEDIAAN KE ARAH PELAKSANAAN MEKANISME PENGURUSAN BUANGAN ELEKTRIK DAN ELEKTRONIK (E-WASTE) DI MALAYSIA

Buangan elektrik dan elektronik (e-waste) merupakan bahan berbahaya atau dikenali sebagai buangan terjadual di Malaysia disebabkan oleh kandungan bahan berbahaya yang boleh memberi kesan kepada kesihatan manusia dan alam sekitar. Pengurusan e-waste juga telah menjadi perhatian dan agenda utama di seluruh dunia berikutan peningkatan kuantiti penjanaannya, perkembangan teknologi dan kebergantungan pengguna terhadap peralatan elektrik dan elektronik serta peningkatan populasi, taraf hidup dan urbanisasi.

Pembangunan Mekanisme Pengurusan Buangan Elektrik dan Elektronik (E-Waste) di Malaysia

Sebagai agensi yang bertanggungjawab ke atas pengurusan buangan terjadual di Malaysia, Jabatan Alam Sekitar (JAS) telah membangunkan Mekanisme Pengurusan E-Waste di Malaysia. Mekanisme ini mengetengahkan prinsip ekonomi kitaran (Circular Economy) dan konsep tanggungjawab pengeluar diperluaskan (Extended Producer Responsibility, EPR) di mana pihak pengeluar bertanggungjawab untuk memastikan pengurusan peralatan elektrik dan elektronik secara mesra alam selepas ia mencapai jangka hayat. Mekanisme ini juga menerapkan konsep perkongsian tanggungjawab (shared responsibility) di kalangan pihak berkepentingan.

Terdapat enam (6) jenis e-waste yang akan dikawal di bawah mekanisme ini iaitu televisyen, peti sejuk, pendingin hawa, mesin basuh, komputer/ komputer peribadi dan telefon bimbit. Di bawah mekanisme ini, kerangka perundangan sedang digubal bertujuan untuk mengawal selia pengurusan, pengendalian dan pelupusan peralatan elektrik dan elektronik bermula daripada peringkat penghasilan produk sehingga ia dilupuskan sebagai e-waste.

PREPARATION TOWARDS IMPLEMENTATION OF ELECTRICAL AND ELECTRONIC WASTE (E-WASTE) MANAGEMENT MECHANISM IN MALAYSIA

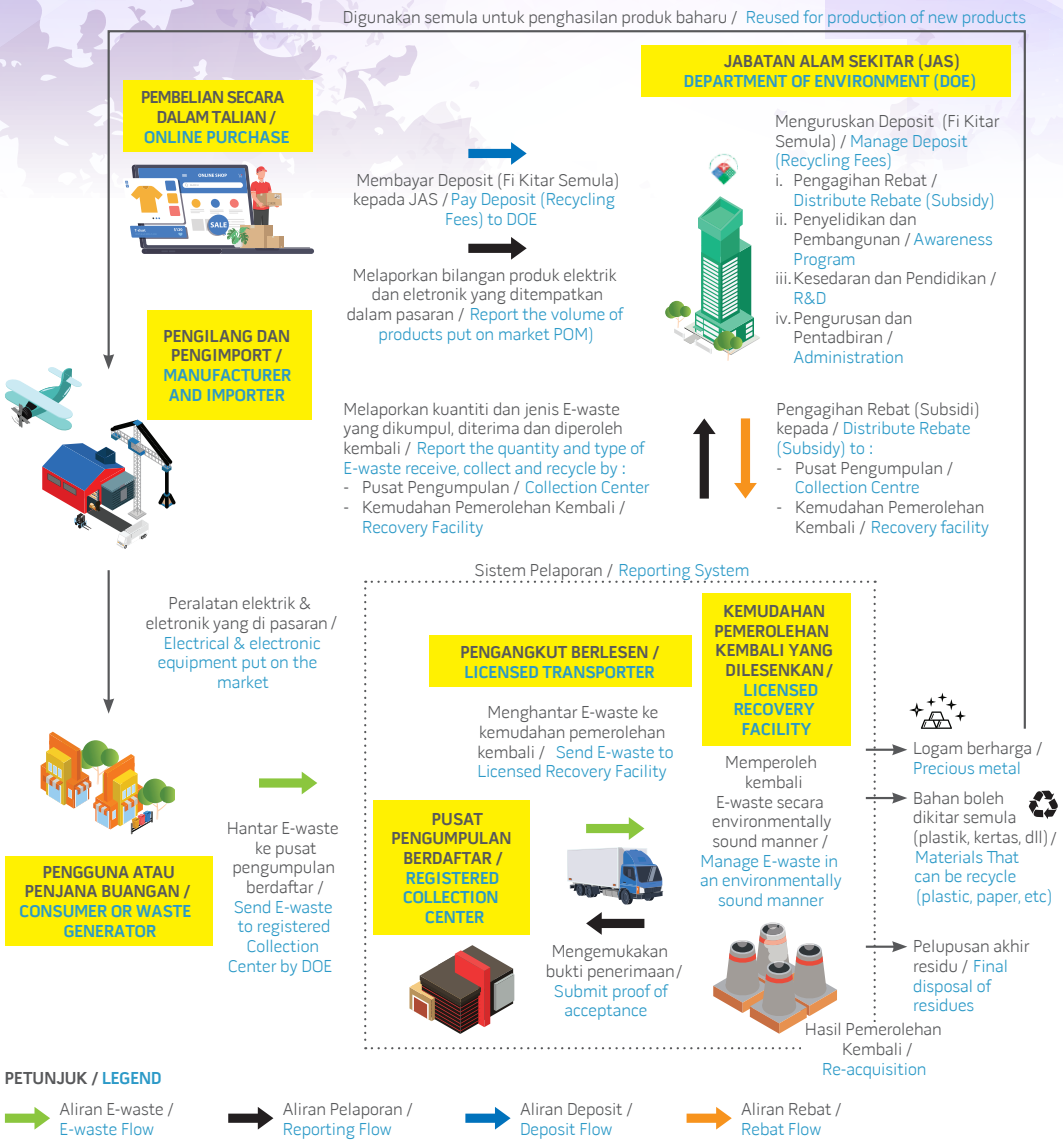
Electrical and electronic waste (e-waste) is a hazardous waste or known as scheduled waste in Malaysia due to its hazardous substances that may pose harmful effects to human health and the environment. E-waste management has become a global agenda and concern due to the increase in quantity of e-waste generation following the advancement of technology, user dependency on electrical and electronic equipment as well as increase in population, standard of living, and urbanization.

Development of Electrical and Electronic Waste Management Mechanism (E-Waste) in Malaysia

As the agency responsible for the scheduled waste management in Malaysia, Department of Environment (DOE) has established an E-Waste Management Mechanism. This mechanism highlights the principle of circular economy (CE) and extended producer responsibility (EPR) concept where the producer is responsible to ensure environmentally sound management of its electrical and electronic product after it reached the end of life. This mechanism also applies the concept of shared responsibility among its stakeholders.

There are six (6) types of e-waste that will be controlled under this mechanism, namely televisions, refrigerators, air conditioners, washing machines, computers/ laptops, and mobile phones. Under this mechanism, legislation framework is currently being drafted to regulate the management, operation, and disposal of electrical and electronic equipment from production until it is disposed as e-waste.





▲ Kerangka Mekanisme Pengurusan E-Waste di Malaysia / E-Waste Management Mechanism Framework in Malaysia

Kerjasama Teknikal (TC) bersama Japan International Corporation Agency (JICA)

Projek kerjasama teknikal untuk fasa ketiga (TC3) masih sedang berjalan memfokuskan kepada pengukuhan pelaksanaan mekanisme pengurusan e-waste di Malaysia yang merangkumi pematuhan kepada aliran e-waste dan aliran pelaporan e-waste serta pengurusan kewangan e-waste. Beberapa sesi perkongsian telah diadakan oleh pihak JICA bagi menerangkan kaedah analisa yang digunakan dalam menentukan unjuran data Put on Market (POM), unjuran penjanaan e-waste menjelang tahun 2030 dan penentuan kadar fi dan subsidi.

Technical Cooperation (TC) with the Japan International Corporation Agency (JICA)

The Technical Cooperation Project for Phase Three (TC3), is ongoing on strengthening the implementation of e-waste management mechanisms in Malaysia which includes compliance to the e-waste flow and e-waste reporting flow as well as e-waste financial management. Several discussion sessions were held related to the projections analysis of Put on Market (POM) data and the generation of e-waste in Malaysia by 2030. Several sharing sessions were conducted by JICA to explain on the projection analysis method applied in determining the Put on Market (POM) data, projection of e-waste generation by 2030 and determination of fee and subsidy rates.

Selain itu, JAS dan JICA juga telah membangunkan sistem e-manifest bertujuan untuk mengenal pasti dan mengkaji status pergerakan e-waste (aliran e-waste) yang diterima oleh pusat pengumpulan dan kemudahan pemerolehan kembali. Sistem ini berkeupayaan untuk merekod data pihak berkepentingan iaitu pengilang/ pengimport, pusat pengumpulan dan kemudahan pemerolehan kembali.

In addition, DOE and JICA have also developed an e-manifest system with the purpose to identify and review the status of e-waste movement (e-waste flow) received by collection centers and recovery facilities. The system is capable to record data by stakeholders, namely manufacturers/ importers, collection centers, and recovery facilities.

Sistem tersebut telah digunakan di dalam Projek Perintis (Pilot Project) Pengumpulan dan Pemerolehan Kembali E-Waste Bagi Pelaksanaan Mekanisme Pengurusan E-Waste di Malaysia. Projek Perintis tersebut telah dijalankan selama enam (6) bulan bermula pada 26 Julai 2023 hingga 25 Januari 2024. Sebanyak lapan (8) pusat pengumpulan, lima (5) kemudahan pemerolehan kembali (separa) dan tiga (3) kemudahan pemerolehan kembali (penuh) yang telah menyertai projek perintis ini. Objektif projek perintis ini adalah untuk:

The system is used in the Pilot Project of E-Waste Collection and Recovery for the Implementation of E-Waste Management Mechanism in Malaysia. The pilot project was conducted for six (6) months starting on 26 July 2023 to 25 January 2024. A total of eight (8) collection centers, five (5) recovery facilities (partial), and three (3) recovery facilities (full) had participated in the pilot project. The objectives of the pilot project are to:

i. Mengenal pasti isu berkaitan aliran e-waste dan pelaporan selepas pelaksanaan mekanisme pengurusan e-waste;
ii. Mengenal pasti status e-waste yang dihantar oleh pusat pengumpulan ke kemudahan pemerolehan kembali;
iii. Mengenal pasti kebolehlaksanaan dan daya maju proses standard bagi pemerolehan kembali e-waste; dan
iv. Mengenal pasti daya maju dan kelestarian keseluruhan kitaran pengurusan e-waste.

i. Identify issues related to the e-waste flow and reporting flow for the implementation of e-waste management mechanism;
ii. Identify the status of e-waste sent by the registered collection center to the recovery facility;
iii. Identify the feasibility and viability of standard process for e-waste recovery; and
iv. Identify the viability and sustainability of the entire e-waste management cycle.



▲ Perbincangan bersama pihak JICA berkenaan analisis data Put on Market dan penjanaan e-waste / Discussion with JICA on data analysis of Put on Market and e-waste generation



▲ Slot Selamat Pagi Malaysia
A slot in Selamat Pagi Malaysia



▲ Bengkel Perundangan Bagi Pelaksanaan Mekanisme Pengurusan E-Waste (Peralatan) 2024 / Legal Workshop for the Implementation of E-Waste Management Mechanism (Equipment) 2024

Bengkel Perundangan bagi Pelaksanaan Mekanisme Pengurusan E-Waste (Peralatan) di Malaysia telah diadakan pada 23 hingga 25 Julai 2024 bertempat di Hotel Dorsett Grand Subang. Bengkel ini dianjurkan oleh Seksyen Scheduled E-Waste, Bahagian Bahan Berbahaya, Jabatan Alam Sekitar (JAS) dengan penglibatan pelbagai agensi berkaitan. Bengkel ini telah dipengerusikan oleh Dr. Norhazni binti Mat Sari, Timbalan Ketua Pengarah Operasi (TKPO), Jabatan Alam Sekitar dan turut dihadiri oleh En. Azlan bin Ahmad, Pengarah Bahagian Bahan Berbahaya, JAS.

Bengkel ini bertujuan menyemak, menggubal dan menambah baik peruntukan perundangan di bawah Akta Kualiti Alam Sekeliling 1974 (AKAS 1974), khususnya dalam aspek pelaksanaan mekanisme pengurusan e-waste (peralatan) secara lestari di Malaysia. Objektif bengkel merangkumi semakan semula klasifikasi buangan terjadual bagi enam (6) item kawalan, penilaian terhadap cadangan dasar oleh Pasukan Pakar JICA, serta penelitian terhadap keperluan perundangan baharu yang lebih sesuai untuk menyokong pelaksanaan mekanisme Extended Producer Responsibility (EPR) di negara ini.

Antara hasil bengkel termasuk cadangan pindaan kepada Seksyen 30A, 30B dan 51 Akta Kualiti Alam Sekeliling 1974, serta penetapan langkah interim melalui pewujudan garis panduan sebelum pindaan perundangan dikuatkuasakan sepenuhnya. Bengkel turut mencadangkan agar diwujudkan satu perundangan khusus berkaitan pengurusan e-waste (peralatan) sebagai mekanisme pengurusan buangan khas (special waste management). Perbincangan juga menyentuh keperluan mengadakan libat urus bersama Kementerian Kewangan berhubung aspek pengurusan kewangan e-waste dan seterusnya bersama Jabatan Peguam Negara bagi membincangkan proses pewartaan perundangan.

Seramai 30 orang peserta menghadiri bengkel ini yang terdiri daripada pegawai kanan dan teknikal daripada pelbagai bahagian JAS termasuk JAS Negeri Johor, Selangor dan Kuala Lumpur, serta Bahagian Kawalselia, Bahagian Undang-Undang, dan EIMAS. Wakil daripada Kementerian Sumber Asli dan Kelestarian Alam (NRES) serta Pasukan Pakar JICA turut serta dalam sesi perbincangan teknikal dan perundangan, menjadikan bengkel ini lebih inklusif dan menyeluruh dari segi penggubalan dasar dan pelaksanaan penguatkuasaan akan datang.

The Legal Workshop on the Implementation of the E-Waste (Equipment) Management Mechanism in Malaysia was held from 23 to 25 July 2024 at Dorsett Grand Subang Hotel. The workshop was organized by the Scheduled E-Waste Section, Hazardous Substances Division, Department of Environment (DOE), with participation from various relevant government agencies. The session was chaired by Dr. Norhazni binti Mat Sari, Deputy Director General of Operations (TKPO), DOE, and was attended by Mr. Azlan bin Ahmad, Director of the Hazardous Substances Division.

The main objective of the workshop was to review and improve the legal provisions under the Environmental Quality Act 1974 (EQA 1974), particularly focusing on the implementation of a structured and sustainable e-waste (equipment) management mechanism in Malaysia. The key goals of the workshop included: reviewing the classification of scheduled waste for the six (6) controlled e-waste items; evaluating policy proposals provided by the JICA Expert Team; and identifying suitable regulatory and institutional frameworks for the future.

Among the key outcomes were recommendations for amending Sections 30A, 30B, and 51 of the EQA 1974, and the proposal to establish interim guidelines while the legal amendments are being finalized. The workshop also recommended the creation of a dedicated law specifically for e-waste (equipment) management as a special waste management stream. Discussions included the need for stakeholder engagement with the Ministry of Finance on financial mechanisms for managing e-waste, and a follow-up engagement with the Attorney General's Chambers (AGC) once the policy direction has been formalized through Cabinet approval.

A total of 30 participants attended the workshop, comprising senior officers and technical personnel from various DOE divisions, including DOE Johor, Selangor, and Kuala Lumpur, as well as representatives from the Legal Division, Regulatory Control Division, and EIMAS. Officials from the Ministry of Natural Resources and Environmental Sustainability (NRES) and technical advisors from the JICA Expert Team also took part in the discussions, ensuring the workshop to be inclusive and comprehensive in addressing legal, policy, and operational aspects of e-waste management in Malaysia.















▲ Program dan aktiviti sepanjang Karnival Jom E-Waste 2024 di AEON Mall AU2 Setiawangsa, Kuala Lumpur / Programs and activities throughout Jom E-Waste Carnival 2023 at AEON Mall AU2 Setiawangsa, Kuala Lumpur

Karnival Jom E-Waste 2024 yang telah dianjurkan pada 12 Oktober 2024 di AEON Mall AU2 Setiawangsa telah membuktikan keberkesanannya sebagai platform kesedaran awam dalam memupuk pemahaman masyarakat mengenai kepentingan pengurusan e-waste secara mampan dan berkesan di Malaysia. Penganjuran karnival ini berjaya menarik kehadiran pelbagai lapisan masyarakat dengan pelbagai aktiviti interaktif dan pendidikan seperti sesi *pocket talk*, kuiz Kahoot, persembahan pentas, serta pelancaran maskot E-Waste "E-Cha" yang menjadi simbolik kepada mesej pendidikan alam sekitar yang ingin disampaikan.

Majlis perasmian yang disempurnakan oleh YB Menteri Sumber Asli dan Kelestarian Alam serta kehadiran Ketua Pengarah Alam Sekitar turut menunjukkan komitmen tinggi kerajaan dalam menyokong inisiatif pendidikan dan pelaksanaan pengurusan e-waste secara menyeluruh. Karnival ini turut mengetengahkan peranan aktif Jabatan Alam Sekitar (JAS) dalam memberikan pendedahan kepada masyarakat tentang cara pelupusan e-waste yang sah dan bertanggungjawab selaras dengan Peraturan-Peraturan Kualiti Alam Sekeliling (Buangan Terjadual) 2005.

Secara keseluruhan, program ini bukan sahaja menyumbang kepada peningkatan kesedaran alam sekitar dalam kalangan masyarakat, malah membuktikan keberkesanan pendekatan bersepadu JAS bersama rakan strategik dalam mendidik orang awam serta menyokong pelaksanaan mekanisme pengurusan e-waste di Malaysia secara lebih sistematik dan lestari.

The Jom E-Waste Carnival 2024 which was held on 12 October 2024 at AEON Mall AU2 Setiawangsa, proved to be an effective platform in fostering public awareness on sustainable and responsible e-waste management in Malaysia. The event successfully attracted a wide range of community participation through interactive and educational activities such as pocket talk sessions, Kahoot quizzes, stage performances, and the symbolic launch of the e-waste mascot "E-Cha," which helped amplify environmental education messages.

The opening ceremony was officiated by the Minister of Natural Resources and Environmental Sustainability and attended by the Director General of the Department of Environment (DOE), demonstrated the government's strong commitment in supporting awareness and regulatory initiatives towards better e-waste governance. The event highlighted the active role of the Department of Environment in raising public awareness regarding proper and lawful disposal of e-waste in line with the Environmental Quality (Scheduled Wastes) Regulations 2005.

Overall, the carnival not only contributed to increasing environmental awareness among the public but also reflected the effectiveness of DOE's collaborative approach with strategic partners to educate the community and support the implementation of a systematic and sustainable e-waste management mechanism in Malaysia.

(i) Program Pengumpulan E-Waste Mengikut Negeri

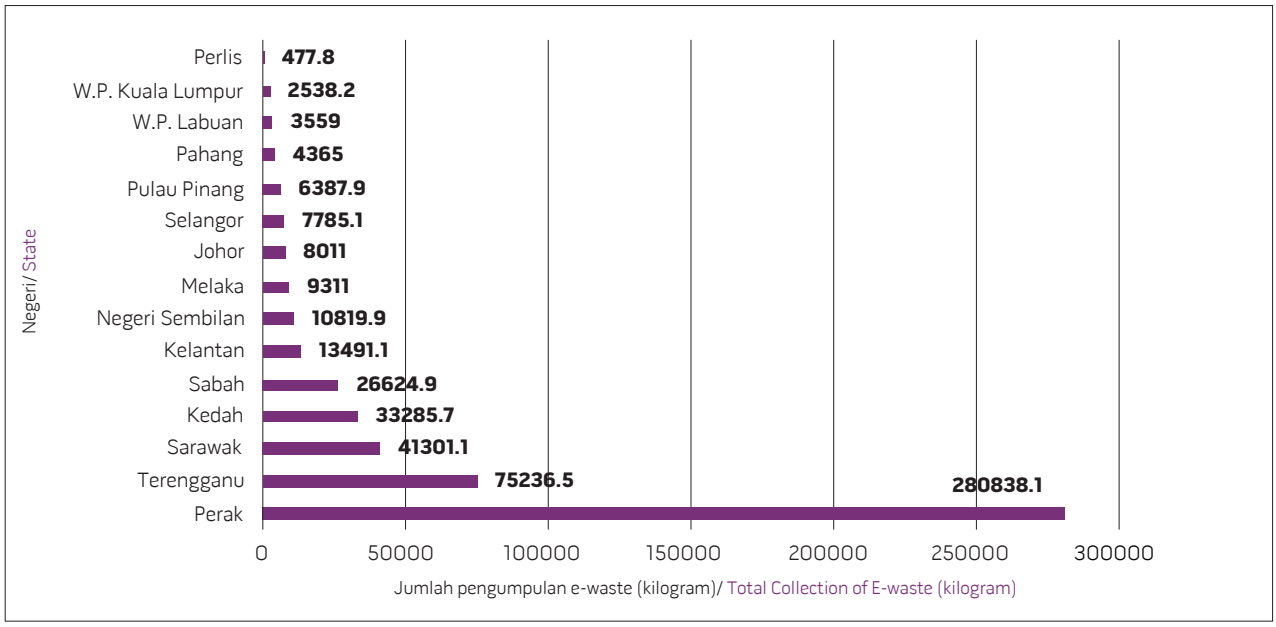
Selaras dengan inisiatif yang telah diperkenalkan oleh Kerajaan iaitu mengumumkan Sabtu terakhir setiap bulan sebagai Hari Pengumpulan E-Waste dan penetapan sasaran pengumpulan e-waste sebanyak 1000 tan metrik bagi tahun 2024, sebanyak 704 aktiviti pengumpulan e-waste telah dijalankan oleh semua JAS Negeri pada tahun ini. Daripada aktiviti pengumpulan tersebut, sebanyak 524,032kg (524.03 tan metrik) e-waste telah berjaya dikumpul. Analisis jumlah pengumpulan e-waste setiap negeri adalah seperti di **Rajah 3.11**. Terdapat penurunan sebanyak 12% jumlah kutipan e-waste berbanding tahun 2023. Ini menunjukkan bahawa tahap kesedaran orang awam adalah masih rendah dan kempen kesedaran berkaitan e-waste terutamanya kepada masyarakat luar bandar masih perlu dipergiat lagi bagi meningkatkan

(i) E-Waste Collection Programme by State

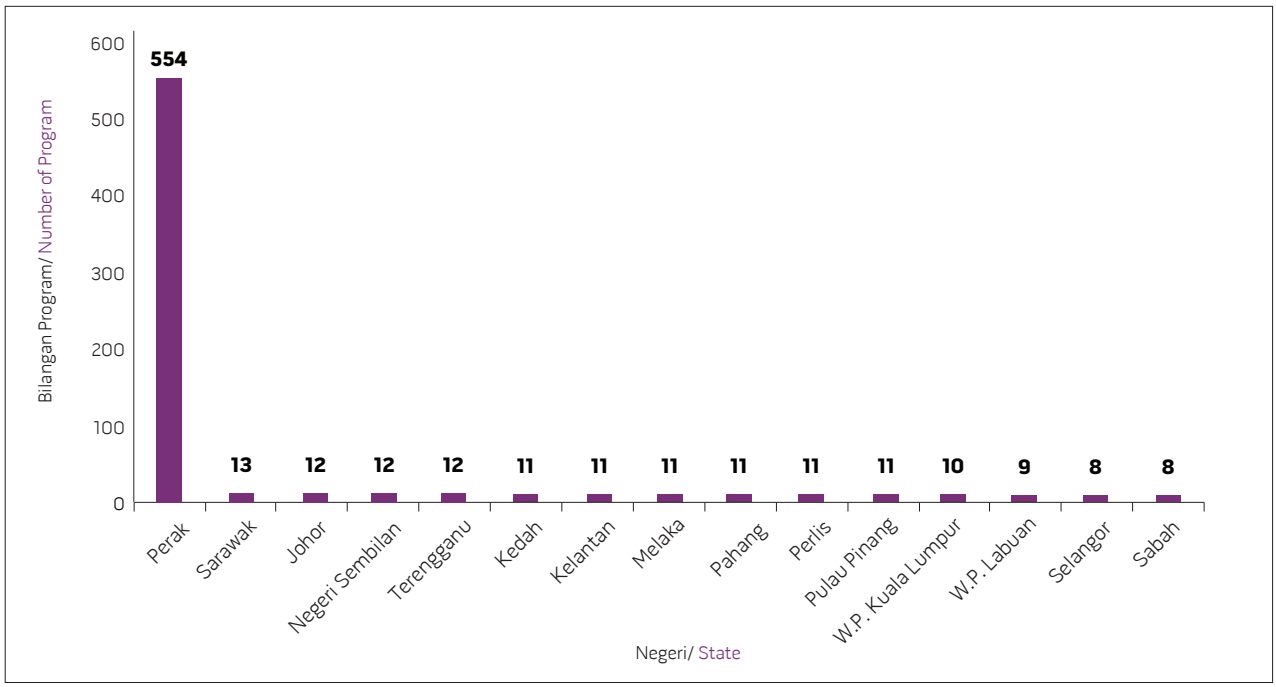
Based on the initiative introduced by the Government to announce the last Saturday of the month as E-Waste Collection Day and e-waste collection target of 1000 metric tons for the year 2024, 704 e-waste collection activities have been recorded by all DOE State this year. From the collection activities, a total of 524,038 kg (524.03 metric tons) of e-waste had been successfully collected. The analysis on the amount of e-waste collected by DOE State is shown in **Figure 3.11**. There is a decrease of 12% in the amount of e-waste collected compared to 2023. This shows that the level of public awareness is still low and awareness campaigns related to e-waste, especially to rural communities, need to be intensified to increase the e-waste collection rate. Based on the record of e-waste collection for the year 2024, DOE State Perak has recorded the highest total e-waste

kadar pengumpulan e-waste. Berdasarkan rekod pengumpulan e-waste bagi tahun 2024, JAS Negeri Perak telah mencatatkan jumlah pengumpulan e-waste tertinggi sebanyak 280,838.10 kg (280.84 tan metrik) dan jumlah kempen pengumpulan e-waste tertinggi sebanyak 554 program **(Rajah 3.12)**.

collection of 280,838.10 kg (280.84 metric tons) and the highest total e-waste collection campaign of 554 programs **(Figure 3.12)**.



Rajah 3.11: Data Pengumpulan E-Waste Mengikut Negeri, 2024
Figure 3.10: E-Waste Collection Data by State, 2024



Rajah 3.12: Bilangan Program Pengumpulan E-Waste yang dijalankan oleh JAS Negeri Tahun 2024
Figure 3.12: E-Waste Collection Programs Conducted by DOE State in 2024

(ii) Pengumpulan E-Waste Isi Rumah bagi tahun 2024 di Bawah Mekanisme Pengurusan E-Waste Di Malaysia

2,113 tan metrik e-waste isi rumah telah berjaya dikumpulkan sepanjang tahun 2024 melalui pelaksanaan menyeluruh mekanisme pengurusan e-waste yang melibatkan pusat pengumpulan, kemudahan pemerolehan kembali (separa) dan kemudahan pemerolehan kembali (penuh) yang berdaftar di bawah Jabatan Alam Sekitar. Jumlah ini mencatatkan penurunan sebanyak 16.4% berbanding tahun 2023 yang merekodkan sebanyak 2,528.78 tan metrik. Penurunan ini memberi isyarat jelas bahawa tahap kesedaran dan penglibatan masyarakat dalam pengurusan e-waste secara sistematik dan mesra alam masih berada pada tahap yang perlu ditingkatkan.

Di samping itu, pendekatan bersepadu yang melibatkan kolaborasi strategik bersama pihak berkuasa tempatan, institusi pendidikan, badan bukan kerajaan (NGO) dan sektor swasta perlu diperluaskan. Program berteraskan pendidikan interaktif, hebahan massa dan insentif komuniti boleh memainkan peranan penting dalam mengarusperdanakan pengurusan e-waste secara Environmental Sound Management (ESM) ke arah peningkatan kadar pengumpulan e-waste yang menyeluruh.

MESYUARAT DAN BENGKEL PENGUMPULAN MAKLUMAT BAHAN KIMIA INDUSTRI BAGI PERSEDIAAN INPUT NEGARA KE COP-12 KONVENSYEN ROTTERDAM 2025 PADA 6-8 NOVEMBER 2024

Bahagian Bahan Berbahaya, Jabatan Alam Sekitar Malaysia telah menganjurkan Mesyuarat dan Bengkel Pengumpulan Maklumat Bahan Kimia Industri bagi persediaan input negara ke COP-12 Konvensyen Rotterdam 2025. Program ini diadakan di Hotel Grand Dorsett, Subang pada 6 hingga 8 November 2024 dengan tujuan mengumpul maklumat terkini mengenai bahan kimia industri yang berkaitan dengan Konvensyen Rotterdam. Selain itu, program ini bertujuan untuk mewujudkan kesepakatan di kalangan agensi yang berkepentingan mengenai penyenaraian bahan kimia berbahaya dalam Annex III Konvensyen Rotterdam serta membincangkan cadangan pindaan kepada teks Konvensyen Rotterdam untuk penambahan Annex VIII yang baharu.

Mesyuarat dan bengkel ini melibatkan penyertaan daripada pelbagai agensi kerajaan yang berkaitan termasuk Kementerian Kesihatan Malaysia (KKM),

(ii) Pengumpulan E-Waste Isi Rumah bagi tahun 2024 di Bawah Mekanisme Pengurusan E-Waste Di Malaysia

Nevertheless, a total of 2,113 metric tonnes of household e-waste was successfully collected throughout 2024 through the comprehensive implementation of the e-waste management mechanism involving collection centers, partial recovery facilities, and full recovery facilities registered under the Department of Environment. This figure represents a 16.4% decrease compared to 2023, which recorded a total of 2,528.78 metric tonnes. This decline is a clear indication that public awareness and participation in systematic and environmentally sound e-waste management are still at levels that need to be improved.

In addition, an integrated approach involving strategic collaboration with local authorities, educational institutions, non-governmental organizations (NGOs), and the private sector must be expanded. Interactive education-based programs, mass publicity efforts, and community incentives can play a vital role in mainstreaming e-waste management through Environmental Sound Management (ESM) towards improving nationwide e-waste collection rates.

MEETING AND WORKSHOP ON INDUSTRIAL CHEMICAL INFORMATION GATHERING IN PREPARATION FOR THE COUNTRY'S INPUT TO COP-12 ROTTERDAM CONVENTION 2025 ON 6-8 NOVEMBER 2024

The Hazardous Substances Division of the Department of Environment Malaysia organized the Meeting and Workshop on Industrial Chemical Information Gathering in preparation for the country's input to COP-12 of the Rotterdam Convention 2025. This program was held at the Grand Dorsett Hotel, Subang, from 6 to 8 November 2024, with the objective of collecting the latest information on industrial chemicals relevant to the Rotterdam Convention. Additionally, the program aimed to establish a consensus among relevant agencies regarding the listing of hazardous chemicals under Annex III of the Rotterdam Convention and to discuss proposed amendments to the text of the Convention for the introduction of a new Annex VIII.

The meeting and workshop involved the participation of various relevant government agencies, including the Ministry of Health Malaysia (MOH), Ministry of

Kementerian Perdagangan Antarabangsa dan Industri (MITI), Kementerian Luar Negeri (KLN), Jabatan Keselamatan dan Kesihatan Pekerjaan (JKKP), Jabatan Kimia Malaysia, Jabatan Kastam Diraja Malaysia, Bahagian Pengurusan Alam Sekitar, Kementerian Sumber Asli dan Kelestarian Alam (BPAS, NRES) dan Jabatan Alam Sekitar sendiri selaku urusetia. Turut hadir adalah wakil sekretariat Konvensyen Rotterdam iaitu YBhg. Dato' Halimi bin Mahmud. Kehadiran dan penglibatan aktif wakil-wakil daripada pelbagai agensi ini telah memastikan perbincangan yang komprehensif serta pertukaran maklumat yang berkesan dalam usaha memperkukuh pendirian Malaysia terhadap isu-isu berkaitan bahan kimia industri di peringkat antarabangsa.

International Trade and Industry (MITI), Ministry of Foreign Affairs, Department of Occupational Safety and Health (DOSH), Department of Chemistry Malaysia, Royal Malaysian Customs Department, Environmental Management Division of the Ministry of Natural Resources and Environmental Sustainability (BPAS, NRES), and Department of Environment itself as the secretariat. YBhg. Dato' Halimi bin Mahmud, representing the Rotterdam Convention Secretariat, was also in attendance. The active participation of representatives from these agencies ensured comprehensive discussions and effective information exchange, strengthening Malaysia's stance on issues related to industrial chemicals at the international level.

Sepanjang mesyuarat dan bengkel berlangsung, beberapa isu penting telah dibincangkan dengan mendalam. Antara isu utama yang diketengahkan adalah mengenai penyenaraian Chrysotile Asbestos dalam Annex III Konvensyen Rotterdam. Perbincangan menyeluruh diadakan mengenai kesan penyenaraian bahan ini terhadap industri tempatan serta langkah kawalan yang perlu diambil bagi melindungi keselamatan dan kesihatan pekerja serta alam sekitar. Dalam hal ini, pendekatan bersepadu dan komprehensif diusulkan untuk memastikan pelaksanaan kawalan yang efektif. Selain itu, isu lain yang turut dibincangkan adalah cadangan pindaan teks Konvensyen Rotterdam bagi penambahan Annex VIII yang baharu. Annex VIII ini dicadangkan bagi merangkumi kategori bahan kimia yang memerlukan kawalan lebih ketat dan prosedur pengurusan yang lebih komprehensif. Cadangan ini bertujuan untuk memperkukuh pengawalan bahan kimia berbahaya di peringkat antarabangsa sekaligus melindungi kepentingan negara.

During the meeting and workshop, several important issues were discussed in depth. One of the main topics highlighted was the listing of Chrysotile Asbestos under Annex III of the Rotterdam Convention. Extensive discussions were held on the potential impact of listing this chemical on local industries, as well as the necessary control measures to protect worker safety and environmental health. In this regard, an integrated and comprehensive approach was proposed to ensure the effective implementation of control measures. Additionally, another issue discussed was the proposed amendment to the text of the Rotterdam Convention to introduce a new Annex VIII. This new annex is intended to include categories of chemicals requiring stricter control and more comprehensive management procedures. The proposal aims to enhance the regulation of hazardous chemicals at the international level while safeguarding national interests.

Hasil daripada perbincangan dan perundingan yang dijalankan, persetujuan bersama telah dicapai di kalangan semua agensi yang terlibat mengenai pendirian Malaysia terhadap isu penyenaraian Chrysotile Asbestos dalam Annex III serta cadangan pindaan bagi Annex VIII. Kesepakatan ini mencerminkan komitmen semua agensi dalam memperkukuh kawalan bahan kimia berbahaya selaras dengan matlamat Konvensyen Rotterdam. Pendirian ini akan diangkat sebagai pendirian rasmi Malaysia dalam COP-12 Konvensyen Rotterdam yang dijadualkan berlangsung pada 27 April hingga 9 Mei 2025.

As a result of thorough discussions and consultations, a consensus was reached among all participating agencies on Malaysia's stance regarding the listing of Chrysotile Asbestos under Annex III and the proposed amendment for Annex VIII. This unified stance reflects the commitment of all agencies involved to strengthen the control of hazardous chemicals in line with the objectives of the Rotterdam Convention. This stance will be presented as Malaysia's official position at COP-12 of the Rotterdam Convention, scheduled to take place from 27 April to 9 May 2025.

Secara keseluruhan, mesyuarat dan bengkel ini berjaya mencapai objektif yang ditetapkan dengan menghasilkan input yang menyeluruh dan persetujuan bersama di kalangan agensi berkepentingan. Ia juga telah memperkukuh kerjasama antara agensi dalam usaha

Overall, the meeting and workshop successfully achieved its objectives by producing comprehensive input and establishing a unified stance among relevant agencies. It also reinforced inter-agency cooperation in strengthening the management of hazardous chemicals in Malaysia.

memperkasakan pengurusan bahan kimia berbahaya di Malaysia. Pihak Bahagian Bahan Berbahaya, Jabatan Alam Sekitar Malaysia merakamkan penghargaan kepada semua agensi yang terlibat atas komitmen dan kerjasama yang diberikan dalam menjayakan program ini. Hasil daripada program ini akan menjadi asas kukuh bagi Malaysia dalam menyuarakan pendirian negara pada COP-12 Konvensyen Rotterdam 2025 dan memperkukuh kedudukan Malaysia dalam arena pengurusan bahan kimia di peringkat antarabangsa.

The Hazardous Substances Division of the Department of Environment Malaysia extends its appreciation to all participating agencies for their commitment and collaboration in making this programme a success. The outcomes of this program will serve as a solid foundation for Malaysia to present its national position at COP-12 of the Rotterdam Convention 2025 and to strengthen Malaysia's position in international chemical management.



▲ Mesyuarat Dan Bengkel Pengumpulan Maklumat Bahan Kimia Industri Bagi Persediaan Input Negara Ke Cop-12 Konvensyen Rotterdam 2025 / Meeting And Workshop On Industrial Chemical Information Gathering In Preparation For The Country's Input To Cop-12 Rotterdam Convention 2025 6-8 November 2024

PENYERTAAN KE SOUTHEAST ASIA COLLABORATOVE CHEMICAL MANAGEMENT / POPS IDENTIFICATION AND MANAGEMENT WORKSHOP, BANGKOK, THAILAND

Pada bulan Mei 2024, bengkel bertajuk Southeast Asia Collaboratove Chemical Management / POPs Identification and Management Workshop, Bangkok, Thailand telah dihadiri oleh YBrs. Dr. Norhazni binti Mat Sari Timbalan Ketua Pengarah Operasi selaku Ketua Delegasi dan Pegawai Bahagian Bahan Berbahaya, Puan Nur Ain Husna binti Amiruddin. Bengkel ini telah diadakan selama 3 hari di Bangkok, Thailand.

Persistent Organic Pollutants (POPs) adalah bahan-bahan pencemar organik yang mempunyai ciri-ciri toksik, tidak mudah hapus dan kekal di dalam alam sekitar untuk jangka masa yang lama. POPs boleh terkumpul di dalam tisu organisma hidup termasuklah manusia melalui makanan, minuman dan udara. POPs juga sering dikaitkan dengan kejadian penyakit kanser, kelahiran bayi yang cacat, gangguan kelakuan neuro dan pelbagai masalah kesihatan yang lain.

Menyedari bahaya yang wujud daripada POPs ini, satu Perjanjian Alam Sekitar Pelbagai Hala (Multilateral Environmental Agreement – MEA) yang dikenali sebagai Stockholm Convention on Persistent Organic Pollutants (POPs) telah ditubuhkan secara rasmi dan ditandatangani di peringkat antarabangsa pada 22 - 23 Mei 2001 di Stockholm, Sweden. Malaysia telah menandatangani Konvensyen Stockholm pada 16 Mei 2002 tetapi masih belum meratifikasi konvensyen ini memandangkan beberapa keperluan di bawah konvensyen yang belum dipenuhi. Kementerian Sumber Asli dan Kelestarian Alam (NRES) merupakan National Focal Point (NFC) bagi konvesyen ini. Sehingga tahun 2023, sebanyak 152 negara telah menandatanganinya dan 186 negara telah meratifikasi konvensyen ini.

Objektif bengkel diadakan adalah untuk membincangkan mengenai amalan terbaik dalam pengurusan bahan kimia, pemahaman dan POPs, serta melibatkan kajian kes yang berkaitan dari negara-negara di rantau ini. Bengkel ini turut membincangkan pendekatan negara terhadap penilaian dan pengurusan risiko, amalan penilaian bahan kimia berasaskan risiko, serta mekanisme pematuhan peraturan bagi pengurusan bahan kimia di Asia Tenggara.

Pihak Jabatan telah membuat dua (2) pembentangan mengenai; i) Overview of Chemical Management Frameworks in Malaysia; dan ii) Overview of POPs Management in Malaysia yang telah dibentangkan oleh YBrs. Dr. Norhazni binti Mat Sari.

PARTICIPATION REPORT: SOUTHEAST ASIA COLLABORATIVE CHEMICAL MANAGEMENT / POPS IDENTIFICATION AND MANAGEMENT WORKSHOP, BANGKOK, THAILAND

In May 2024, the Southeast Asia Collaborative Chemical Management / POPs Identification and Management Workshop was attended by YBrs. Dr. Norhazni binti Mat Sari, Deputy Director-General of Operations, as the Head of Delegation, along with Ms. Nur Ain Husna binti Amiruddin, Officer from the Hazardous Substances Division. The workshop was held for three days in Bangkok, Thailand.

Persistent Organic Pollutants (POPs) are toxic organic pollutants that are resistant to degradation and remain in the environment for extended periods. POPs can accumulate in the tissues of living organisms, including humans, through food, water, and air. They are commonly associated with cancer, birth defects, neurobehavioral disorders, and various other health problems.

Recognizing the dangers posed by POPs, a Multilateral Environmental Agreement (MEA) known as the Stockholm Convention on Persistent Organic Pollutants was officially established for international signing on 22–23 May 2001 in Stockholm, Sweden. Malaysia signed the Stockholm Convention on 16 May 2002 but has yet to ratify it due to outstanding requirements under the convention that have not been fulfilled. The Ministry of Natural Resources and Environment (NRES) serves as the National Focal Point (NFP) for this convention. As of 2023, 152 countries have signed and 186 countries have ratified the convention.

The workshop aimed to discuss best practices in chemical management, enhance understanding of POPs, and include relevant case studies from countries in the region. It also addressed the country's approaches to risk assessment and management, risk-based chemical assessment practices, and regulatory compliance mechanisms for chemical management in Southeast Asia.

The Department made two (2) presentations during the workshop; i) Overview of Chemical Management Frameworks in Malaysia; and ii) Overview of POPs Management in Malaysia, both presented by YBrs. Dr. Norhazni binti Mat Sari.

Hasil bengkel ini, pihak Jabatan telah meneliti dan menyediakan tujuh (7) pelan tindakan bagi memastikan keperluan untuk meratifikasi Konvensyen Stockholm dapat dilaksanakan seperti berikut:

i. Pelan Tindakan 1: Penyediaan Draf Peratutran-Peraturan Kualiti Alam Sekeliling (Bahan Berbahaya Kepada Alam Sekeliling) 202X
ii. Pelan Tindakan 2: Penubuhan Jawatankuasa Tadbir Urus Bahan Kimia Berbahaya Kebangsaan
iii. Pelan Tindakan 4: Pembentukan Jawatankuasa Teknikal Pemegang Taruh Industri Kimia Kebangsaan Ke Arah Meratifikasi Konvensyen Stockholm (Chemical Industry National Stakeholder Towards the Ratification of SC Technical Committee, CINSTC)
iv. Pelan Tindakan 5: Mengadakan Seminar: Malaysia ke Arah Meratifikasi Konvensyen Stockholm
v. Pelan Tindakan 6: Mewujudkan Pasukan Taskforce: Malaysia ke Arah Meratifikasi Konvensyen Stockholm
vi. Pelan Tindakan 7: Permohonan Peruntukan di Bawah Sekretariat Konvensyen Stockholm

Kehadiran ke bengkel ini dapat membantu pihak Jabatan dalam penyediaan draf pelan-pelan tindakan sekaligus dapat dijadikan input untuk membuat persediaan meratifikasi Konvensyen Stockholm.

Following the workshop, the Department reviewed and prepared seven (7) action plans to ensure the requirements for ratifying the Stockholm Convention can be implemented, as follows:

i. Action Plan 1: Preparation of Draft Environmental Quality (Hazardous Substances to the Environment) Regulations 202X
ii. Action Plan 2: Establishment of the National Hazardous Chemicals Governance Committee
iii. Action Plan 4: Formation of the National Chemical Industry Stakeholders Technical Committee Towards Ratification of the Stockholm Convention (CINSTC)
iv. Action Plan 5: Organizing a Seminar: Malaysia Towards Ratification of the Stockholm Convention
v. Action Plan 6: Establishment of a Taskforce Team: Malaysia Towards Ratification of the Stockholm Convention
vi. Action Plan 7: Application for Funding Under the Stockholm Convention Secretariat

Participation in this workshop has assisted the Department in drafting these action plans, which will serve as valuable input in preparations to ratify the Stockholm Convention.



▲ Delegasi Malaysia Bersama dengan Delegasi Negara Asia Pasifik yang Lain / Malaysian Delegation Together with Delegations from Other Asia Pacific Countries

LAPORAN PENYERTAAN MESYUARAT TEKNIKAL FORUM CHEMICAL IN PLASTICS, HANOI, VIETNAM OKTOBER 2024

Pada bulan Oktober 2024, dua (2) orang pegawai dari Bahagian Bahan Berbahaya, Jabatan Alam Sekitar Putrajaya iaitu Puan Nur Ain Husna binti Amiruddin dan Encik Mohd Zanial bin Zakaria telah menghadiri mesyuarat teknikal Forum Chemical in Plastics di Hanoi, Korea.

Plastik mengandungi beribu-ribu bahan kimia, termasuk bahan berbahaya seperti karsinogen dan pengganggu endokrin, yang sebahagiannya merupakan bahan pencemar organik berterusan. Bahan-bahan kimia ini boleh menimbulkan risiko yang ketara terhadap kesihatan manusia dan alam sekitar. Bagi menangani pencemaran plastik, pihak sekretariat Konvensyen Basel sedang dalam proses membangunkan satu dokumen antarabangsa yang berpotensi untuk mengurangkan kerumitan produk plastik, meningkatkan ketelusan dan keterkesanan pengesanan, serta menggalakkan penggunaan bahan yang mampan berdasarkan penilaian risiko yang teliti dan kriteria keselamatan berasaskan sains.

Objektif utama forum ini adalah untuk meningkatkan kesedaran dan pemahaman dalam kalangan pembuat dasar di Vietnam dan negara-negara di rantau Asia mengenai isu-isu berkaitan bahan kimia dalam plastik, dengan tumpuan khusus kepada bahan-bahan yang terkandung di bawah konvensyen BRS, serta kaitan dengan dokumen baharu yang sedang dibangunkan.

Hari pertama mesyuarat memberi tumpuan kepada pembangunan instrumen baharu yang sah dari segi undang-undang bagi pencemaran plastik, serta perbincangan mengenai perjanjian sedia ada dan skop instrumen baharu tersebut. Para peserta juga membincangkan cabaran dalam pengurusan POPs dalam produk dan barangan, kepentingan pembungkusan makanan dalam mengelakkan pembaziran makanan, serta potensi risiko kesihatan yang berkaitan dengan bahan kimia dalam plastik. Perbincangan diakhiri dengan topik mengenai keperluan ketelusan dalam industri, pembangunan rangka kerja global baharu yang merangkumi keseluruhan kitar hayat bahan kimia, serta usaha berterusan untuk menangani bahan kimia yang membimbangkan merentasi sektor-sektor.

Hari kedua mesyuarat membincangkan hasil mesyuarat ke-20 Jawatankuasa Semakan POPs, dengan tumpuan kepada cadangan untuk memasukkan bahan kimia baharu serta pengecualian khusus bagi parafin berklorin, asid fluorokarboksilik rantai panjang dan

PARTICIPATION REPORT OF THE TECHNICAL MEETING – CHEMICAL IN PLASTICS FORUM, HANOI, VIETNAM, OCTOBER 2024

In October 2024, two (2) officers from the Hazardous Substances Division, Department of Environment Putrajaya — Ms. Nur Ain Husna binti Amiruddin and Mr. Mohd Zanial bin Zakaria attended the technical meeting of the Chemical in Plastics Forum held in Hanoi, Vietnam.

Plastics contain thousands of chemicals, including harmful substances such as carcinogens and endocrine disruptors, some of which are persistent organic pollutants. These chemicals may pose significant risks to both human health and the environment. To tackle plastic pollution, Member States are in the process of developing an international legally binding instrument, as outlined by UNEA resolution 5/14. This effort could reduce the complexity of plastic products, enhance transparency and traceability, and promote the use of sustainable, non-toxic materials based on rigorous risk assessments, and science-based safety criteria.

The overarching objective of this forum is to increase the awareness and understanding of policy makers in Viet Nam and the countries in the Asian region on issues related to chemicals in plastics, with particular focus on those covered under the BRS conventions, and how they could potentially relate to the new instrument under consideration. Specifically, the forum focused on the following aspects:

The first day of the meeting focused on the development of a new legally binding instrument for plastic pollution, with discussions on existing agreements and the scope of the new instrument. The participants also discussed the challenges of managing Persistent Organic Pollutants (POPs) in products and articles, the importance of food packaging in preventing food waste, and the potential health risks associated with chemicals in plastics. The conversation ended with discussions on the need for transparency in the industry, the development of a new global framework covering the entire chemical lifecycle, and ongoing work to address chemicals of concern across sectors.

The second day of the meeting discussed the outcomes of the 20th meeting of the Pops Review Committee, focusing on the recommendations for listing new chemicals and specific exemptions for chlorinated paraffins, long-chain fluorocarboxylic acids, and

klorpirifos. Selain itu, mesyuarat turut membincangkan peningkatan ketara dalam pengeluaran dan sisa plastik, potensi kesan kesihatan dan alam sekitar daripada bahan kimia yang digunakan dalam pengeluaran plastik, serta cabaran dalam mengitar semula sisa plastik. Mesyuarat diakhiri dengan perbincangan mengenai komposisi dan proses pembuatan plastik, cabaran dalam mengawal bahan kimia berbahaya di pelbagai industri, serta potensi pembangunan bahan berasaskan bio dan bahan komposit sebagai alternatif kepada plastik.

Penyertaan pegawai dari JAS ke mesyuarat teknikal forum ini dapat mempertingkatkan perkongsian maklumat mengenai pendekatan kawalan sedia ada, termasuk di bawah konvensyen BRS, dan mempertimbangkan elemen-elemen utama dalam memfokuskan keutamaan kepada bahan kimia tertentu atau kumpulan bahan kimia dalam plastik. Selain itu, forum ini juga bertujuan untuk meneliti mekanisme yang berkesan bagi menyampaikan maklumat berkaitan bahan kimia merentasi rantaian bekalan, dengan memanfaatkan inisiatif sedia ada dan pengetahuan saintifik.

chlorpyrifos. Also, the meeting addressed the significant increase in plastic production and waste, the potential health and environmental impacts of chemicals used in plastic production, and the challenges of recycling plastic waste. The meeting ended with discussions on the composition and manufacturing process of plastics, the challenges of regulating hazardous chemicals in various industries, and the potential for developing bio-based and composite materials as alternatives to plastic.

The participation of officers from the Department of Environment (DOE) in this technical forum meeting can enhance information sharing on the existing approaches, including BRS, and consider key elements for prioritizing certain chemicals or groups of chemicals in plastics. Additionally, the forum aims to consider effective mechanisms for communicating chemical information across the supply chain, building on existing initiatives and scientific knowledge.



▲ Ahli Mesyuarat yang Terlibat Bergambar Bersama pada Hari Pertama Mesyuarat
Members of the Meeting Taking a Group Photo on the First Day of the Meeting



▲ Sekitar Hari Mesyuarat / Around the Meeting Day

PENGUATKUASAAN KE ATAS PREMIS

Kawalan ke Atas Premis yang Ditetapkan

Di bawah Akta Kualiti Alam Sekeliling (AKAS) 1974, premis yang ditetapkan adalah ditakrifkan sebagai premis yang dilesenkan sebagaimana ditetapkan oleh Menteri di bawah Seksyen 18, AKAS 1974. Premis yang ditetapkan tersebut adalah kilang getah asli mentah, kilang minyak kelapa sawit mentah dan kilang atau kemudahan pengolahan atau pelupusan buangan terjadual seperti dinyatakan di bawah Perintah Kualiti Alam Sekeliling (Premis Yang Ditetapkan) (Getah Asli Mentah) 1978, Perintah Kualiti Alam Sekeliling (Premis Yang Ditetapkan) (Minyak Kelapa Sawit Mentah) 1977 atau Perintah Kualiti Alam Sekeliling (Premis Yang Ditetapkan) (Kemudahan Pengolahan dan Pelupusan Buangan Terjadual) 1989. Operasi premis-premis ini adalah tertakluk kepada keperluan Seksyen 18, AKAS 1974 di mana pemilik premis ini perlu mempunyai lesen daripada Jabatan Alam Sekitar (JAS) bagi menduduki dan/atau menggunakan premis.

Kilang Getah Asli Mentah

Pada tahun 2024, sejumlah 41 buah kilang getah asli mentah telah dilesenkan dan tertakluk kepada Peraturan-Peraturan Kualiti Alam Sekeliling (Premis Yang Ditetapkan) (Getah Asli Mentah), 1978. Daripada jumlah ini, 22 buah kilang telah dilesenkan bagi melepaskan efluen yang telah diolah ke alur air, satu (1) ke atas tanah manakala 18 buah kilang lagi dibenarkan untuk mengitar semula efluen. **Rajah 3.13** menunjukkan bilangan kilang getah asli mentah mengikut negeri.

Pada tahun 2024 JAS telah menjalankan sejumlah 148 pemeriksaan ke atas 41 buah kilang getah asli mentah yang telah dilesenkan. Tindakan penguatkuasaan diambil ke atas kilang yang gagal mematuhi AKAS 1974 dan Peraturan-peraturan di bawahnya. Dalam hal ini, sejumlah 15 Notis Arahan telah dikeluarkan untuk tindakan penambahbaikan bagi mematuhi keperluan perundangan. Tindakan susulan penguatkuasaan yang diambil adalah seperti yang ditunjukkan dalam **Rajah 3.13.**

ENFORCEMENT ON THE PREMISES

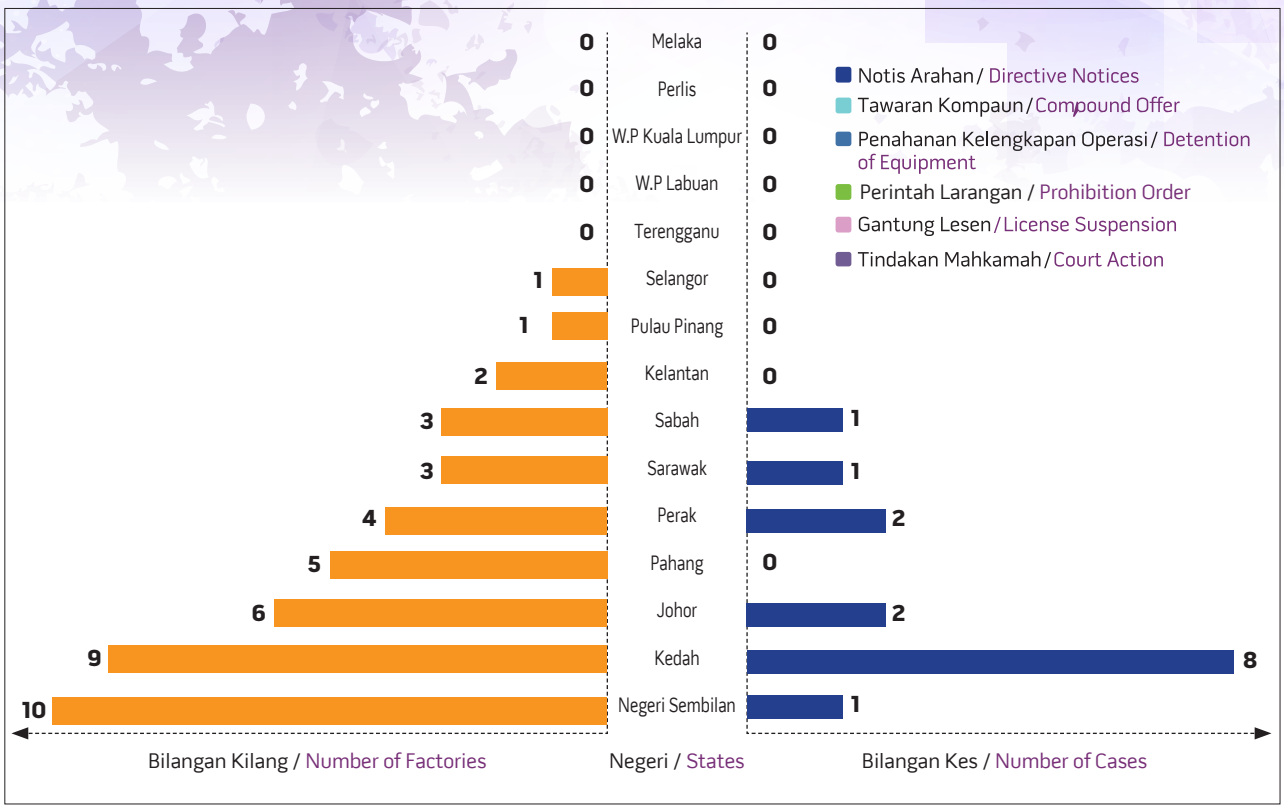
Control of Prescribed Premises

Under the Environmental Quality Act (EQA) 1974, prescribed premise is defined as licensed premises as prescribed by the Minister under Section 18, EQA 1974. The prescribed premises are raw natural rubber factories, crude palm oil mills and factories or facilities for the treatment or disposal of scheduled wastes as stated under the Environmental Quality (Prescribed Premises) (Raw Natural Rubber) Order 1978, Environmental Quality (Prescribed Premises) (Crude Palm Oil) Order 1977 or the Environmental Quality (Prescribed Premises) (Scheduled Wastes Treatment and Disposal Facilities) Order 1989. The operation of these premises is subject to the requirements of Section 18, EQA 1974 whereby the owner of the premises is required to obtain license from the Department of Environment (DOE) to occupy and/or use the premises.

Raw Natural Rubber Factories

In 2024, a total of 41 raw natural rubber factories were licensed and subjected to Environmental Quality (Prescribed Premises) (Raw Natural Rubber) Regulations 1978. Of these, 22 factories were licensed to discharge treated effluent into the waterways, one (1) factory to practise land disposal and the remaining 18 factories were allowed to recycle their effluent. **Figure 3.13** displays the number of raw natural rubber factories by state.

In 2024, a total of 148 inspections on 41 licensed natural rubber factories were conducted by DOE. Enforcement actions were taken on the factories that failed to comply with the EQA 1974 and its regulations thereunder. A total of 15 Directive Notices were issued for remedial action in order to comply with legal requirements. The enforcement follow-up actions taken are as shown in **Figure 3.13.**



Rajah 3.13: Bilangan Kilang Getah Asli Mentah yang Dilesenkan dan Tindakan Undang-Undang Terhadap Kilang Getah Asli Mentah, 2024
Figure 3.13: Number of Licensed Raw Natural Rubber Factories and Legal Actions Against Raw Natural Rubber Factories, 2024

- **Status Pematuhan terhadap Peraturan-peraturan Kualiti Alam Sekeliling (Premis Yang Ditetapkan) (Getah Asli Mentah) 1978**

  Pada tahun 2024, pencapaian pematuhan kilang getah asli mentah kepada Peraturan-Peraturan Kualiti Alam Sekeliling (Premis Yang Ditetapkan) (Getah Asli Mentah) 1978 adalah 100%.

- **Status Pematuhan terhadap Peraturan-peraturan Kualiti Alam Sekeliling (Udara Bersih) 2014**

  Kilang getah asli mentah tertakluk kepada Peraturan-Peraturan Kualiti Alam Sekeliling (Udara Bersih) 2014. Pada tahun 2024, pencapaian pematuhan keseluruhan oleh kilang getah asli mentah kepada peraturan tersebut adalah 96%.

- **Status Pematuhan terhadap Peraturan-peraturan Kualiti Alam Sekeliling (Buangan Terjadual) 2005**

  Pada tahun 2024, pencapaian pematuhan keseluruhan oleh kilang getah asli mentah kepada Peraturan-peraturan Kualiti Alam Sekeliling (Buangan Terjadual) 2005 adalah 98%.

- **Status of Compliance to the Environmental Quality (Prescribed Premises) (Raw Natural Rubber) Regulations 1978**

  For 2024, the compliance of the raw natural rubber factories to the Environmental Quality (Prescribed Premises) (Raw Natural Rubber) Regulations 1978 was 100%.

- **Status of Compliance to the Environmental Quality (Clean Air) Regulations 2014**

  Raw natural rubber factories are subject to the Environmental Quality (Clean Air) Regulations 2014. In 2024, the overall compliance achieved by raw natural rubber factories to the regulations was 96%.

- **Status of Compliance to the Environmental Quality (Scheduled Wastes) Regulations 2005**

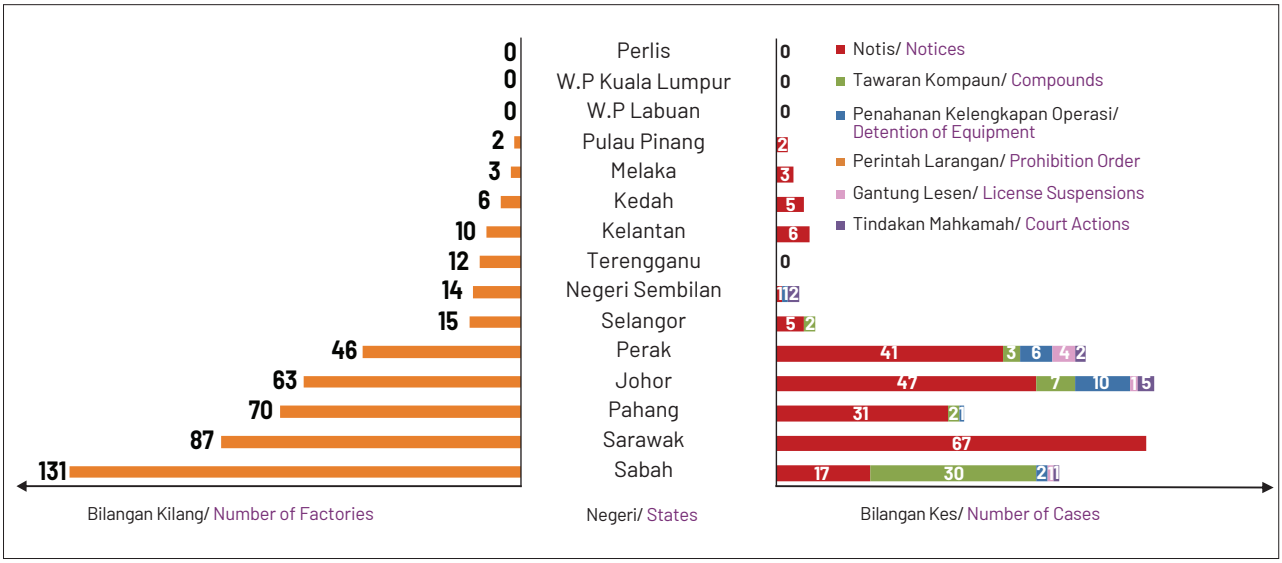
  In 2024, the overall compliance by raw natural rubber factories to the Environmental Quality (Scheduled Wastes) Regulations 2005 was 98%.

Kilang Minyak Kelapa Sawit Mentah

Sejumlah 459 buah kilang minyak kelapa sawit mentah telah dilesenkan pada tahun 2024 dan kilang adalah tertakluk kepada Peraturan-peraturan Kualiti Alam Sekeliling (Premis Yang Ditetapkan) (Minyak Kelapa Sawit Mentah) 1977. Daripada jumlah ini, 359 buah kilang telah dibenarkan melepaskan efluen terolah ke dalam alur air, 92 buah kilang melupuskan efluen ke atas tanah, empat (4) buah kilang dilesenkan tanpa pelepasan dan empat (4) buah kilang melupuskan efluen dengan menggunakan gabungan kaedah alur air dan atas tanah. **Rajah 3.14** menunjukkan taburan bilangan kilang minyak kelapa sawit mentah di Malaysia mengikut negeri.

Crude Palm Oil Mills

459 palm oil mills were licensed in 2024 and these mills are subject to the Environmental Quality (Prescribed Premises) (Crude Palm Oil Mill) Regulations 1977. Of this number, a total of 359 were allowed to discharge treated effluent into inland watercourse, 92 to practice land disposal, four (4) were licensed without discharge dan four (4) to discharge effluent by a combination of inland watercourse and land. **Figure 3.14** shows the distribution of crude palm oil mills in Malaysia by states.



Rajah 3.14: Bilangan Kilang Minyak Kelapa Sawit Mentah yang Dilesenkan dan Tindakan Undang-Undang Terhadap Kilang Minyak Kelapa Sawit Mentah, 2024
Figure 3.14: Number of Licensed Crude Palm Oil Mills Factories and Legal Actions Against Crude Palm Oil Mills, 2024

Pada tahun 2024, JAS telah menjalankan sejumlah 1,611 pemeriksaan ke atas 459 buah kilang minyak kelapa sawit mentah yang telah dilesenkan. Sejumlah 225 notis arahan telah dikeluarkan pada tahun 2024 untuk tindakan penambahbaikan bagi mematuhi keperluan perundangan. Di samping itu, sejumlah 44 kompaun turut dikeluarkan kepada kilang-kilang yang telah gagal mematuhi AKAS 1974 dan Peraturan-Peraturan di bawahnya. Selain itu, 20 buah kilang telah dikenakan Penahanan Operasi Kelengkapan, enam (6) buah kilang digantung lesen dan 14 buah kilang telah dikenakan tindakan mahkamah atas kegagalan mematuhi syarat-syarat lesen yang dikeluarkan. Tindakan susulan penguatkuasaan yang diambil adalah seperti yang ditunjukkan dalam **Rajah 3.14**.

In 2024, DOE conducted a total of 1,611 inspections on 459 licensed crued palm oil mills. A total of 225 Directive Notices were issued in 2024 for remedial action to comply with legal requirements. Apart from that, a total of 44 compounds were issued to factories that failed to comply with the EQA1974 and the Regulations thereunder. Other than that, 20 mills were issued the Detention of Equipment, six (6) mills were suspended and 14 mills were prosecuted for failing to comply with the conditions of the license issued. The enforcement follow-up actions taken are as shown in **Figure 3.14**.

- **Status Pematuhan terhadap Peraturan-peraturan Kualiti Alam Sekeliling (Premis Yang Ditetapkan) (Minyak Kelapa Sawit Mentah) 1977**

  Pada tahun 2024, pencapaian pematuhan kilang minyak kelapa sawit mentah kepada Peraturan-peraturan Kualiti Alam Sekeliling (Premis Yang Ditetapkan) (Minyak Kelapa Sawit Mentah) 1977 adalah 93%.

- **Status Pematuhan terhadap Peraturan-peraturan Kualiti Alam Sekeliling (Udara Bersih) 2014**

  Kilang minyak kelapa sawit mentah juga tertakluk kepada Peraturan-peraturan Kualiti Alam Sekeliling (Udara Bersih) 2014. Pencapaian pematuhan keseluruhan oleh kilang minyak kelapa sawit mentah bagi tahun 2024 adalah 98%.

- **Status Pematuhan terhadap Peraturan-peraturan Kualiti Alam Sekeliling (Buangan Terjadual) 2005**

  Pada tahun 2024, pencapaian pematuhan keseluruhan kilang minyak kelapa sawit mentah kepada Peraturan-peraturan Kualiti Alam Sekeliling (Buangan Terjadual) 2005 adalah 99%.

- **Status of Compliance to the Environmental Quality (Prescribed Premises) (Crude Palm Oil) Regulations 1977**

  In 2024, the compliance achieved by the crude palm oil mills to the Environmental Quality (Prescribed Premises) (Crude Palm Oil) Regulations, 1977 was 93%.

- **Status of Compliance to the Environmental Quality (Clean Air) Regulations 2014**

  Crude palm oil mills are also subject to the Environmental Quality (Clean Air) Regulations 2014. In 2024, the overall compliance achieved by crude palm oil mills was 98%.

- **Status of Compliance to the Environmental Quality (Scheduled Wastes) Regulations 2005**

  In 2024, the overall compliance of Environmental Quality (Scheduled Wastes) Regulations 2005 achieved by the crude palm oil mills was 99%.



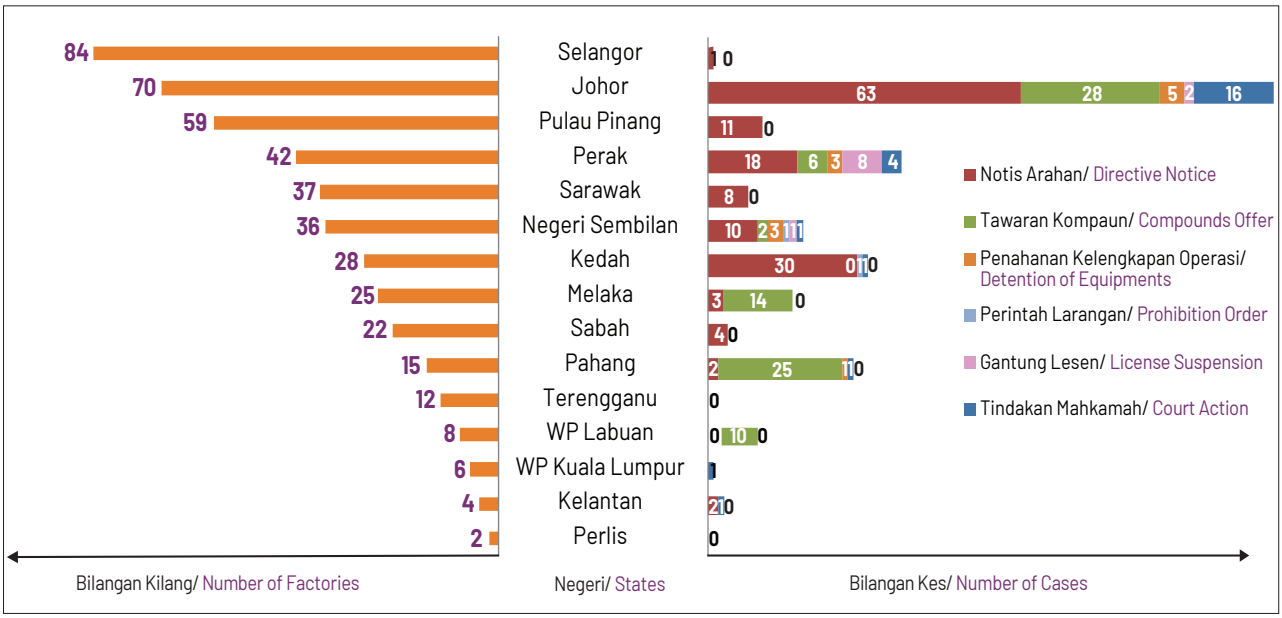
▲ Pemeriksaan di Kilang Getah Asli Mentah dan Kilang Minyak Kelapa Sawit Mentah
Inspection at Raw Natural Rubber Factories and Crude Palm Oil Mills

Kemudahan Pengolahan dan Pelupusan Buangan Terjadual

Sejumlah 438 buah premis telah dilesenkan oleh JAS di bawah Seksyen 18(1), AKAS 1974 untuk menguruskan buangan terjadual pada tahun 2024. **Rajah 3.15** menunjukkan bilangan premis yang dilesenkan mengikut negeri. Pada tahun 2024, JAS telah menjalankan sejumlah 1,408 pemeriksaan ke atas 435 premis yang beroperasi untuk mengolah atau melupuskan buangan terjadual. Tindakan susulan pemeriksaan penguatkuasaan yang diambil ke atas premis-premis yang gagal mematuhi AKAS 1974 dan peraturan-peraturan di bawahnya adalah seperti yang ditunjukkan dalam **Rajah 3.15**. Sejumlah 152 notis arahan telah dikeluarkan pada tahun 2024 untuk tindakan penambahbaikan bagi mematuhi keperluan perundangan dan sejumlah 85 kompaun turut dikeluarkan kepada premis-premis yang didapati gagal mematuhi perundangan tersebut. Selain daripada itu, sembilan (9) premis telah dikenakan Penahanan Operasi Kelengkapan, lapan (8) premis telah di gantung lesen dan dua puluh lima (25) premis juga telah dikenakan tindakan mahkamah atas kegagalan mematuhi syarat-syarat lesen yang dikeluarkan.

Scheduled Wastes Treatment and Disposal Facilities

A total of 438 premises were licensed by DOE under Section 18 (1), of the EQA 1974 to manage scheduled wastes in 2024. **Figure 3.15** shows the number of premises licensed by states.In 2024, DOE conducted a total of 1,408 inspections on these 435 premises that operate to treat and dispose scheduled wastes. The enforcement action taken on premises that failed to comply with the EQA 1974 and the Regulations thereunder is as shown in **Figure 3.15**. A total of 152 directive notices were issued in 2024 for remedial action to comply with legal requirements and a total of 85 compounds were also issued to related premises that failed to comply with the legislation. In addition, nine (9) premises were subject to the Detention of Equipment, the license of eight (8) premises were suspended and twen ty five (25) premises have been prosecuted for failure to comply with the conditions of the license issued.



Rajah 3.15: Bilangan Kemudahan Pengolahan dan Pelupusan Buangan Terjadual dan Tindakan Undang-Undang terhadap Kemudahan Pengolahan dan Pelupusan Buangan Terjadual, 2024
Figure 3.15: Number and Legal Actions Againsts Facilities for the Treatment and Disposal Facilities of Scheduled Wastes, 2024

- **Status Pematuhan terhadap Peraturan-peraturan Kualiti Alam Sekeliling (Premis yang Ditetapkan) (Kemudahan Pengolahan dan Pelupusan Buangan Terjadual) 1989**

Pada tahun 2024, pencapaian pematuhan keseluruhan oleh Kemudahan Pengolahan dan Pelupusan Buangan Terjadual adalah 92%.

- **Status Pematuhan terhadap Peraturan-peraturan Kualiti Alam Sekeliling (Efluen Perindustrian) 2009**

Pada tahun 2024, pencapaian pematuhan keseluruhan oleh Kemudahan Pengolahan dan Pelupusan Buangan Terjadual kepada Peraturan-peraturan Kualiti Alam Sekeliling (Efluen Perindustrian) 2009 adalah 95%.

- **Status Pematuhan terhadap Peraturan-peraturan Kualiti Alam Sekeliling (Udara Bersih) 2014**

Kemudahan Pengolahan dan Pelupusan Buangan Terjadual juga tertakluk kepada Peraturan-peraturan Kualiti Alam Sekeliling (Udara Bersih) 2014. Pada tahun 2024, pencapaian pematuhan keseluruhan oleh premis-premis tersebut adalah 95%.

- **Status Pematuhan terhadap Peraturan-peraturan Kualiti Alam Sekeliling (Buangan Terjadual) 2005**

Pada tahun 2024, pencapaian pematuhan keseluruhan Kemudahan Pengolahan dan Pelupusan Buangan Terjadual kepada Peraturan-peraturan Kualiti Alam Sekeliling (Buangan Terjadual) 2005 adalah 97%.

KAWALAN KE ATAS PREMIS YANG BUKAN DITETAPKAN

Premis yang bukan ditetapkan adalah merujuk kepada premis selain dari premis yang dilesenkan di bawah Seksyen 18, AKAS 1974 iaitu selain daripada kilang getah asli mentah, kilang minyak kelapa sawit mentah dan premis yang menjalankan pengolahan dan pelupusan buangan terjadual. Premis-premis ini merangkumi kilang-kilang dari pelbagai sektor industri pembuatan dan pengilangan, sistem pengolahan kumbahan, tapak pelupusan sisa pepejal, loji rawatan air dan sebagainya.

JAS pada tahun 2024 telah menjalankan 15,853 pemeriksaan ke atas 12,085 premis yang bukan ditetapkan di seluruh negara melalui pendekatan pemeriksaan di lapangan dan pemeriksaan atas talian bagi membanteras pencemaran alam sekitar. Dalam hal ini, JAS turut menetapkan sasaran untuk meningkatkan pematuhan AKAS 1974 bagi lapan (8) sektor industri yang mempunyai pematuhan yang rendah berdasarkan rekod sebelum ini, iaitu (i) pembuatan produk logam, kecuali mesin dan kelengkapan; (ii) pembuatan kertas dan produk kertas; (iii) pembuatan logam asas; (iv) pembuatan produk getah dan plastik; (v) pembuatan produk galian bukan logam lain; (vi) pembuatan produk makanan; (vii) pembuatan kimia dan produk kimia; dan (viii) pembuatan kok dan produk petroleum bertapis.

- **Status of Compliance to the Environmental Quality (Scheduled Wastes) (Scheduled Wastes Treatment and Disposal Facilities) Regulations 1989**

In 2024, the overall compliance by the licensed Facilities for the Treatment and Disposal of Scheduled Wastes was 92%.

- **Status of Compliance to the Environmental Quality (Industrial Effluent) Regulations 2009**

In 2024, the overall compliance by these Scheduled Wastes Treatment and Disposal Facilities to the Environmental Quality (Industrial Effluent) Regulations 2009 was 95%.

- **Status of Compliance to the Environmental Quality (Clean Air) Regulations 2014**

Scheduled Wastes Treatment and Disposal Facilities are also subject to the Environmental Quality (Clean Air) Regulations 2014. In 2024, the overall compliance of these premises was 95%.

- **Status of Compliance to the Environmental Quality (Scheduled Wastes) Regulations 2005**

In 2024, the overall compliance of Scheduled Wastes Treatment and Disposal Facilities to the Environmental Quality (Scheduled Wastes) Regulations 2005 97%.

CONTROL ON NON-PRESCRIBED PREMISES

Non-prescribed premises refers to premises other than those licensed under Section 18, EQA 1974, which are those other than raw natural rubber factories, crude palm oil mills, and premises for the treatment and disposal of scheduled waste. These include factories from various manufacturing industries, sewage treatment system, solid waste landfills, water treatment plant, and others.

DOE in 2024 has conducted 15,853 inspection on 12,085 non-prescribed premises throughout the country through field and desktop enforcement in order to combat environmental pollution. In this case, DOE also targeted to improve EQA 1974's compliance for eight (8) industrial sectors that has been identified to have low compliance based on previous records, which are (i) manufacture of fabricated metal products, except machinery and equipment; (ii) manufacture of paper and paper products; (iii) manufacture of basic metals; (iv) manufacture of rubber and plastic products; (v) manufacture of other non-metallic mineral products; (vi) manufacture of food products; (vii) manufacture of chemicals and chemicals products; and (viii) manufacture of coke and refined petroleum products.

Selain itu, pemantauan ke atas premis-premis melalui program rondaan dan pengawasan udara menggunakan dron di kawasan tumpuan pencemaran pada waktu pejabat dan di luar waktu pejabat turut dilaksanakan oleh JAS sepanjang tahun.

- **Status Pematuhan terhadap Peraturan-peraturan Kualiti Alam Sekeliling (Efluen Perindustrian) 2009**

  Premis-premis yang bukan ditetapkan yang menghasilkan dan melepaskan efluen perindustrian adalah tertakluk kepada Peraturan-peraturan Kualiti Alam Sekeliling (Efluen Perindustrian) 2009. Pada tahun 2024, sejumlah 1,146 pemeriksaan telah dijalankan ke atas 863 premis dari 36 kategori industri pembuatan dan lain-lain premis yang bukan ditetapkan yang tertakluk kepada Peraturan-peraturan Kualiti Alam Sekeliling (Efluen Perindustrian) 2009.

  Pencapaian pematuhan keseluruhan kepada peraturan tersebut adalah 97%. Terdapat 19 kategori industri yang merekodkan pematuhan 100% pada tahun 2024 seperti yang ditunjukkan dalam **Rajah 3.16.**

- **Status Pematuhan terhadap Peraturan-peraturan Kualiti Alam Sekeliling (Udara Bersih) 2014**

  Premis-premis yang bukan ditetapkan yang melepaskan bahan pencemar ke udara adalah tertakluk kepada Peraturan-peraturan Kualiti Alam Sekeliling (Udara Bersih) 2014. Sebanyak 2,717 pemeriksaan telah dijalankan pada tahun 2024 yang melibatkan 2,138 premis dari 50 kategori industri pembuatan dan lain-lain premis yang bukan ditetapkan yang tertakluk kepada peraturan tersebut. Pencapaian pematuhan keseluruhan adalah 99%. Terdapat 26 kategori industri yang berjaya mencapai pematuhan 100% pada tahun 2024 seperti yang ditunjukkan dalam **Rajah 3.17.**

- **Status Pematuhan terhadap Peraturan-peraturan Kualiti Alam Sekeliling (Buangan Terjadual) 2005**

  Premis-premis yang bukan ditetapkan yang menghasilkan buangan terjadual tertakluk kepada kawalan di bawah Peraturan-peraturan Kualiti Alam Sekeliling (Buangan Terjadual) 2005. JAS telah menjalankan 5,765 pemeriksaan ke atas 4,781 premis dalam kategori industri pembuatan dan lain-lain premis yang bukan ditetapkan yang tertakluk kepada peraturan tersebut pada tahun 2024. Pencapaian pematuhan keseluruhan oleh premis yang bukan ditetapkan adalah 99%. Pada tahun 2024, terdapat 29 kategori industri yang berjaya mencapai pematuhan 100% terhadap Peraturan-peraturan Kualiti Alam Sekeliling (Buangan Terjadual) 2005 seperti yang ditunjukkan dalam **Rajah 3.18.**

Aside from that, DOE has also carried out patrols program and aerial surveillance using drones at pollution hotspots within and after office hours throughout the year.

- **Status of Compliance to the Environmental Quality (Industrial Effluent) Regulations 2009**

  The non-prescribed premises that generate and discharge industrial effluents are subject to the Environmental Quality (Industrial Effluent) Regulations, 2009. In 2024, DOE has conducted a total of 1,146 inspections on 863 premises in 36 categories of manufacturing industries and other non-prescribed premises that were subjected to the Environmental Quality (Industrial Effluent) Regulations, 2009.

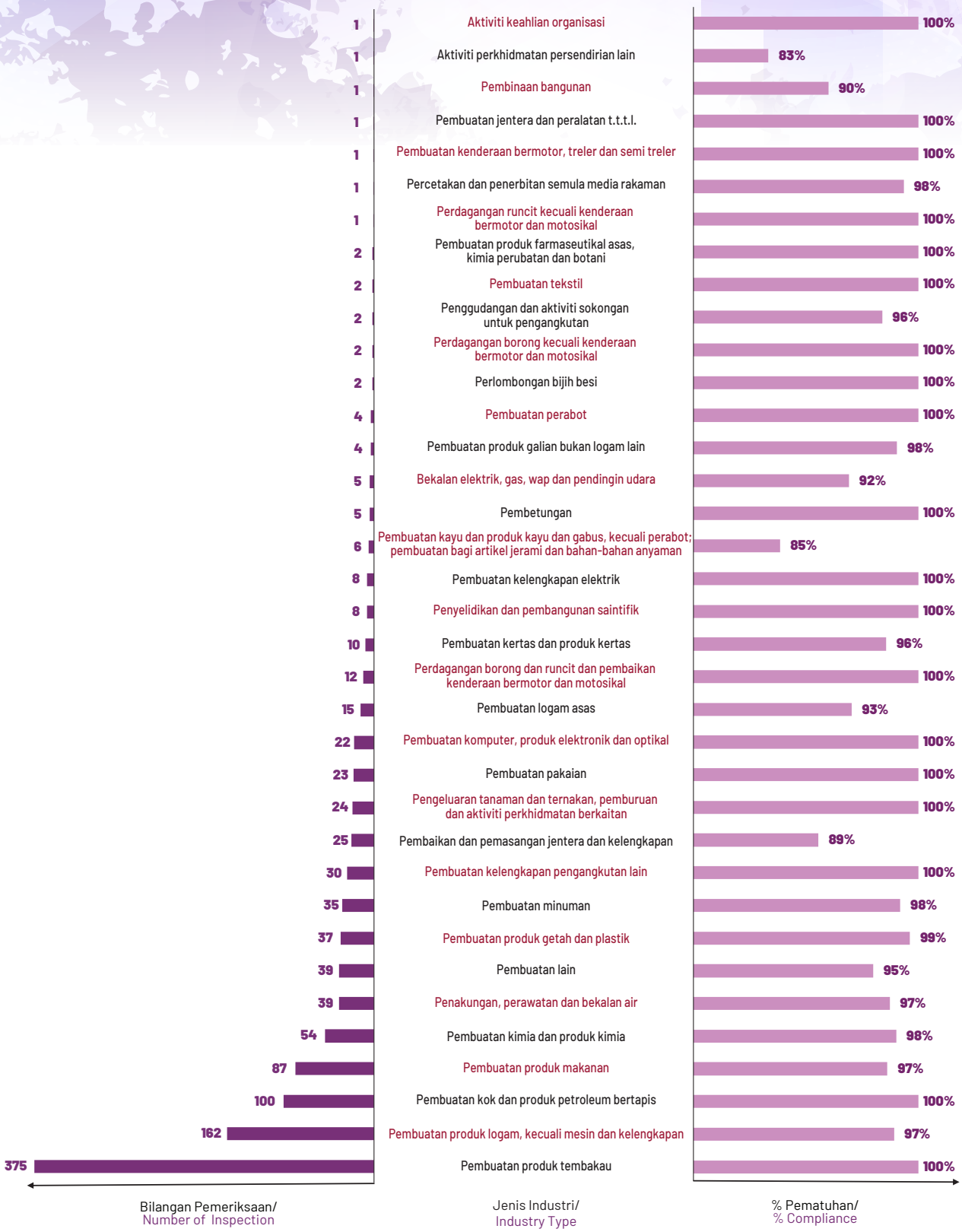
  The overall compliance achieved by the non-prescribed premises to the regulation was 97%. There were 19 categories of industries that recorded 100% compliance in 2024 as shown in **Figure 3.16**.

- **Status of Compliance to the Environmental Quality (Clean Air) Regulations 2014**

  The non-prescribed premises which releases pollutants into the air are subject to the Environmental Quality (Clean Air) Regulations 2014. A total of 2,717 inspections were conducted on on 2,138 premises in 50 categories of manufacturing industries and other non-prescribed premises that were subject to the Environmental Quality (Clean Air) Regulations 2014. The overall compliance was 99%. A total of 26 categories of industries have managed to achieve 100% compliance in 2024 as shown in **Figure 3.17**.

- **Status of Compliance to the Environmental Quality (Scheduled Wastes) Regulations 2005**

  The non-prescribed premises that generate scheduled wastes are subject to the Environmental Quality (Scheduled Wastes) Regulations 2005. DOE has conducted 5,765 inspections on 4,781 premises in categories of manufacturing industry and other non-prescribed premises that were subject to the Environmental Quality (Scheduled Wastes) Regulations 2005 in the year 2024. The overall compliance by non-prescribed premises was 99%. In 2024, 29 categories of industries subject to the Environmental Quality (Scheduled Wastes) Regulations 2005 managed to achieve 100% compliance as shown in **Figure 3.18**.

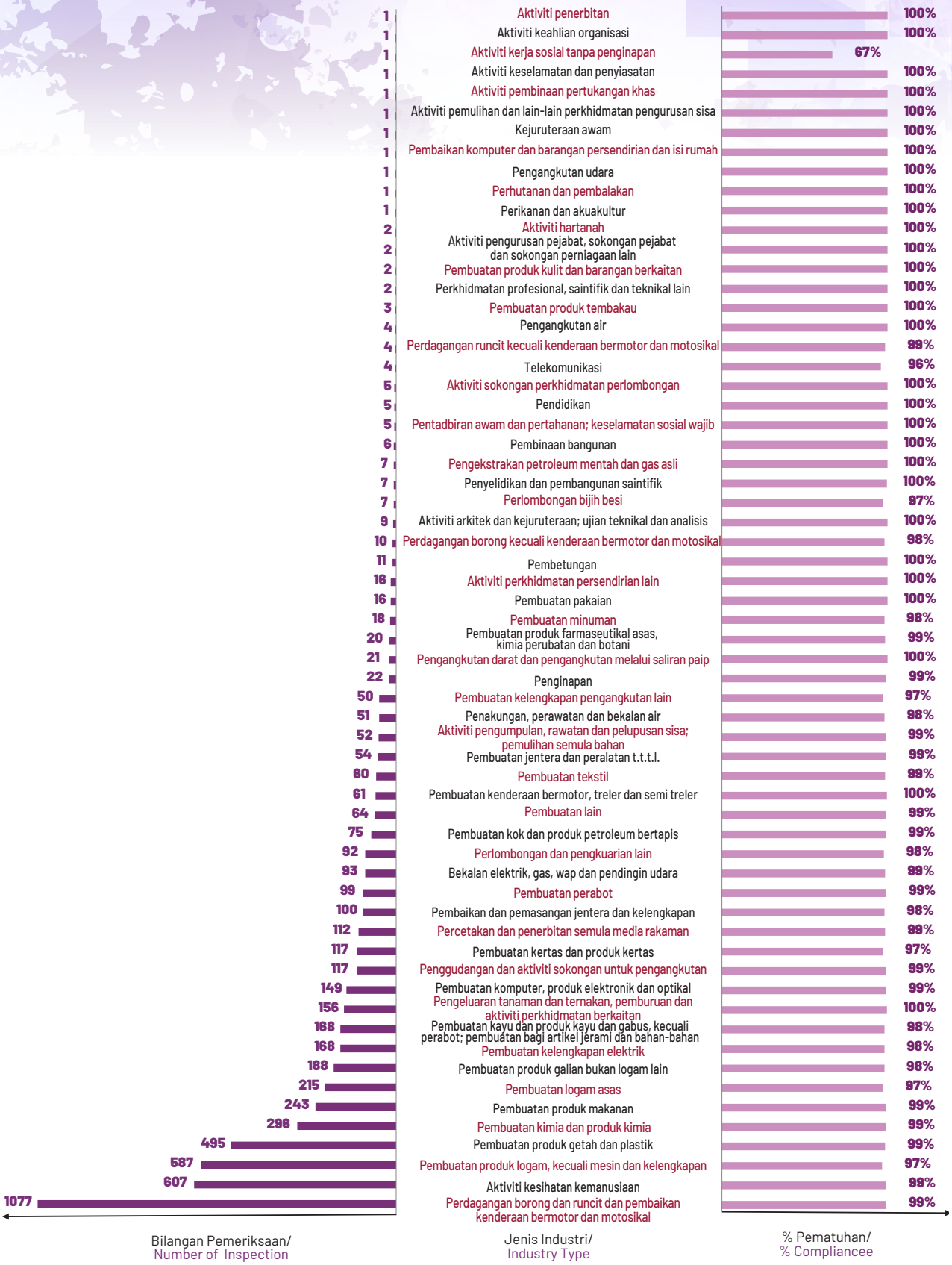


Rajah 3.16: Status Pematuhan Industri terhadap Peraturan-Peraturan Kualiti Alam Sekeliling (Efluen Perindustrian) 2009, 2024
Figure 3.16: Compliance Status to the Environmental Quality (Industrial Effluent) Regulations 2009, 2024



▲ Rajah 3.17: Status Pematuhan Industri terhadap Peraturan-Peraturan Kualiti Alam Sekeliling (Udara Bersih) 2014, 2024

Figure 3.17: Compliance Status to the Environmental Quality (Clean Air) Regulations 2014, 2024



Rajah 3.18: Status Pematuhan Industri terhadap Peraturan-Peraturan Kualiti Alam Sekeliling (Buangan Terjadual) 2005, 2024

Figure 3.18: Compliance Status to the Environmental Quality (Scheduled Wastes) Regulations 2005, 2024

TINDAKAN PENGUATKUASAAN KE ATAS PREMIS

Pada tahun 2024, sejumlah 308 kes pertuduhan di bawah AKAS 1974 yang melibatkan premis telah didenda di mahkamah dengan jumlah denda sebanyak RM 8,134,900.00. Tindakan-tindakan penguatkuasaan lain yang telah diambil ke atas premis yang didapati melakukan kesalahan di bawah AKAS 1974 adalah pengeluaran 2,170 notis arahan supaya premis mengambil tindakan yang sewajarnya bagi perundangan yang berkaitan. Selain itu 2,544 kompaun telah dikeluarkan kepada premis atas kegagalan mematuhi peruntukan perundangan sebagaimana dinyatakan di atas. Sejumlah 96 premis juga telah dikenakan Penahanan Operasi Kelengkapan dan tujuh (7) premis dikenakan Perintah Larangan untuk beroperasi, manakala sebanyak empat belas (14) premis telah dikenakan tindakan gantung lesen.

Pihak industri hendaklah sentiasa memastikan premis masing-masing dilengkapi dengan sistem kawalan pencemaran yang sesuai dan berkesan bagi memastikan operasi premis tidak menyebabkan pencemaran alam sekitar. Selain itu, konsep amalan pengeluaran bersih juga boleh diterapkan dan pendekatan pematuhan kendiri melalui pelaksanaan tujuh (7) alat pengarusperdanaan alam sekitar yang digariskan oleh JAS boleh diterapkan dalam organisasi sebagai usaha ke arah pematuhan 100% kepada AKAS 1974.

Pelaksanaan Operasi Gempur (Ops Gempur)

Operasi penguatkuasaan bersasar dalam skala besar melalui inisiatif Ops Gempur secara berkala di seluruh negara telah dilaksanakan oleh JAS sejak tahun 2020. Ops Gempur ini menyasarkan premis-premis yang terletak di hulu takat pengambilan air, operasi premis yang mendapat aduan yang kerap, premis yang menghasilkan beban pencemar yang tinggi, sering dikenakan tindakan penguatkuasaan, premis menghasilkan buangan terjadual dalam kuantiti yang tinggi, premis yang terletak di kawasan yang mempunyai isu alam sekitar dan premis yang terletak di lembangan sungai yang tercemar. Beberapa siri Ops Gempur yang dijalankan di peringkat negeri juga turut dilaksanakan secara bersepadu dengan agensi-agensi penguatkuasa lain seperti Pihak Berkuasa Tempatan, Polis Diraja Malaysia (PDRM), Jabatan Imigresen Malaysia (JIM), Jabatan Mineral dan Geosains Malaysia (JMG), Suruhanjaya Perkhidmatan Air Negara (SPAN), Badan Kawal Selia Air Negeri, Indah Water Konsortium

ENFORCEMENT ACTION ON PREMISES

A total of 308 cases were prosecuted in criminal court in 2024 with an accumulated fine of RM 8,134,900.00. Other enforcement actions that have been taken on premises which were found to have committed offences under EQA 1974 were the issuance of 2,170 directive notices to instruct the premises to take appropriate action in complying with related legislation. In addition, 2,544 compounds were given to premises for failure to comply with legal provisions as stated above. Other than that, a total of 96 premises were issued Detention of Equipment and seven (7) premises were issued Prohibition Order to operate, while fourteen (14) premises have had their license suspended.

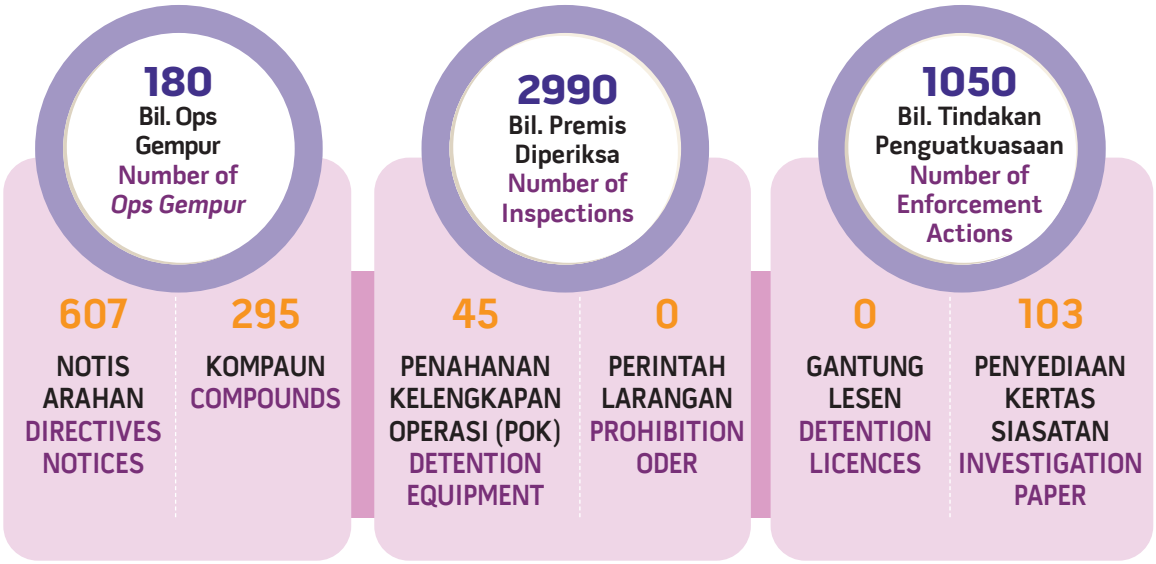
The industries are obliged to implement suitable and efficient pollution control system to ensure that the operation of their premis does not cause environmental pollution. In addition, the concept of cleaner production practices can also be applied and the approach of self-compliance through the implementation of seven (7) environmental mainstreaming tools outlined by DOE can be inculcated within the organization as an effort towards 100% compliance of EQA 1974.

Implementation of Operasi Gempur (Ops Gempur)

Ops Gempur, a large-scale enforcement activities that were carried out on periodic basis throughout the nation has been initiated by DOE since 2020. The implementation of Ops Gempur targeted premises located at the upstream of the water intake, premises where public complaints have been recorded, premises that produce high pollutant loads, or repeated offences frequently, premises generating high quantity of scheduled wastes or located in areas that have environmental issues or in polluted river basins. A few series of the Ops Gempur conducted at the state level were also carried out with cooperation from other enforcement agencies such as the Local Authority, Royal Malaysia Police (PDRM), Immigration Department of Malaysia (JIM), Department of Mineral and Geoscience Malaysia (JMG), the National Water Services Commission (SPAN), State Water Regulatory Authorities, Indah Water Konsortium Sdn. Bhd. (IWK), Water Treatment Plants Operators and other agencies

Sdn. Bhd. (IWK), Operator Loji Rawatan Air dan lain-lain agensi bagi membolehkan tindakan penguatkuasaan yang lebih tegas dapat diambil terhadap kesalahan yang dilakukan mengikut bidang kuasa agensi masing-masing.

to allow stricter enforcement action taken by the authorities of respective agencies against offences committed.



Rajah 3.19: Tindakan Penguatkuasaan melalui Ops Gempur yang telah Diambil oleh JAS, 2024
Figure 3.19: Summary of Enforcement Actions Taken by DOE, 2024

Bagi tempoh 1 Januari 2024 sehingga 31 Disember 2024, JAS telah menjalankan 180 Ops Gempur di seluruh Negara yang melibatkan pemeriksaan ke atas 2,990 premis yang terdiri dari pelbagai kategori industri. Sebanyak 1,050 tindakan penguatkuasaan di bawah AKAS 1974 telah diambil ke atas premis yang gagal mematuhi peruntukan Akta tersebut. Rumusan tindakan penguatkuasaan melalui Ops Gempur yang telah diambil oleh JAS pada tahun 2024 adalah seperti **Rajah 3.19.**

For the period of 1 January 2024 to 31 December 2024, DOE has conducted 180 Ops Gempur nationwide involving inspections of 2,990 premises from various categories of industries. A total of 1,050 enforcement actions under the EqA 1974 were taken against premises that failed to comply with the legislation. A summary of enforcement actions taken during 2024 is as shown in **Figure 3.19.**

Semua pihak yang tertakluk kepada perundangan alam sekitar perlu mengambil langkah proaktif yang sewajarnya agar operasi premis tidak akan menyumbang kepada pencemaran alam sekitar dan menjejaskan kesejahteraan masyarakat.

All parties that are subjected to the environmental legislation must take appropriate proactive measures so that the operation of the premises will not contribute to environmental pollution and affect the well-being of the community.

"Alam Sekitar Tanggungjawab Bersama". Setiap tindakan dan keputusan yang diambil hendaklah sentiasa mengambil kira elemen kelestarian alam sekitar bagi memastikan kepesatan aktiviti pembangunan dan perindustrian tidak menjejaskan kualiti alam sekitar.

"Environment, Our Shared Responsibility". The element of environmental sustainability should be considered in every action and decision taken to ensure that the quality of the environment will not be affected despite the rapid industrial and development activities.

PEMERIKSAAN PELEPASAN DARIPADA KENDERAAN BERMOTOR

Sepanjang tahun 2024, sebanyak 1,533,831 buah kenderaan baharu telah didaftarkan di Malaysia. Pecahan keseluruhan kenderaan bermotor yang berdaftar mengikut jenis kenderaan adalah seperti yang tertera pada **Rajah 3.20**. Secara kumulatif sehingga tahun 2024, sebanyak 37,960,881 buah kenderaan bermotor telah didaftarkan di Malaysia.

Daripada 1,533,831 buah kenderaan baharu yang didaftarkan dalam tahun 2024, kategori kereta merupakan yang tertinggi iaitu 833,218 unit (53.62%) diikuti motosikal sebanyak 652,570 unit (42%) dan sebanyak 68,043 unit (4.38%) adalah dari lain-lain jenis kenderaan termasuk lori, bas, van dan sebagainya.

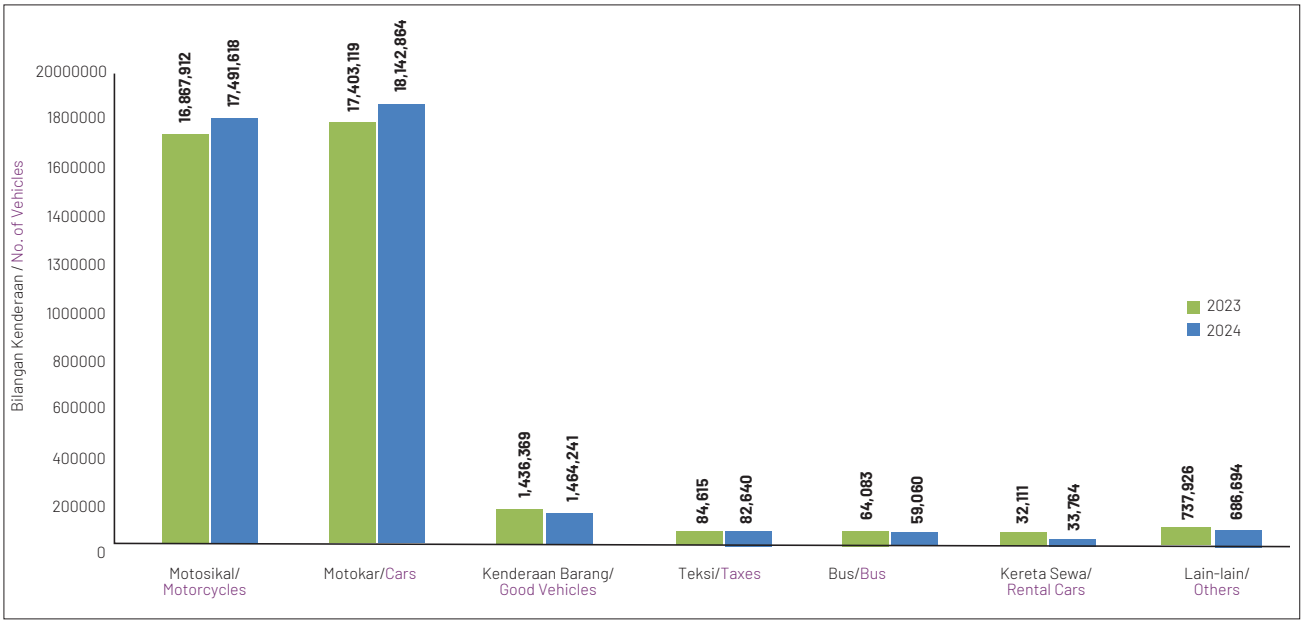
Taburan bilangan kenderaan bermotor di Malaysia mengikut negeri adalah seperti yang tertera di **Rajah 3.21**. Wilayah Persekutuan (termasuk Kuala Lumpur, Putrajaya dan Labuan) mendahului negeri-negeri lain dengan bilangan kenderaan yang tertinggi iaitu sebanyak 6,999,338 unit (18.44%) daripada keseluruhan bilangan kenderaan yang berdaftar di negara ini, diikuti oleh Johor, Selangor, Pulau Pinang dan Perak.

ENFORCEMENT ON MOTOR VEHICLES EMISSION

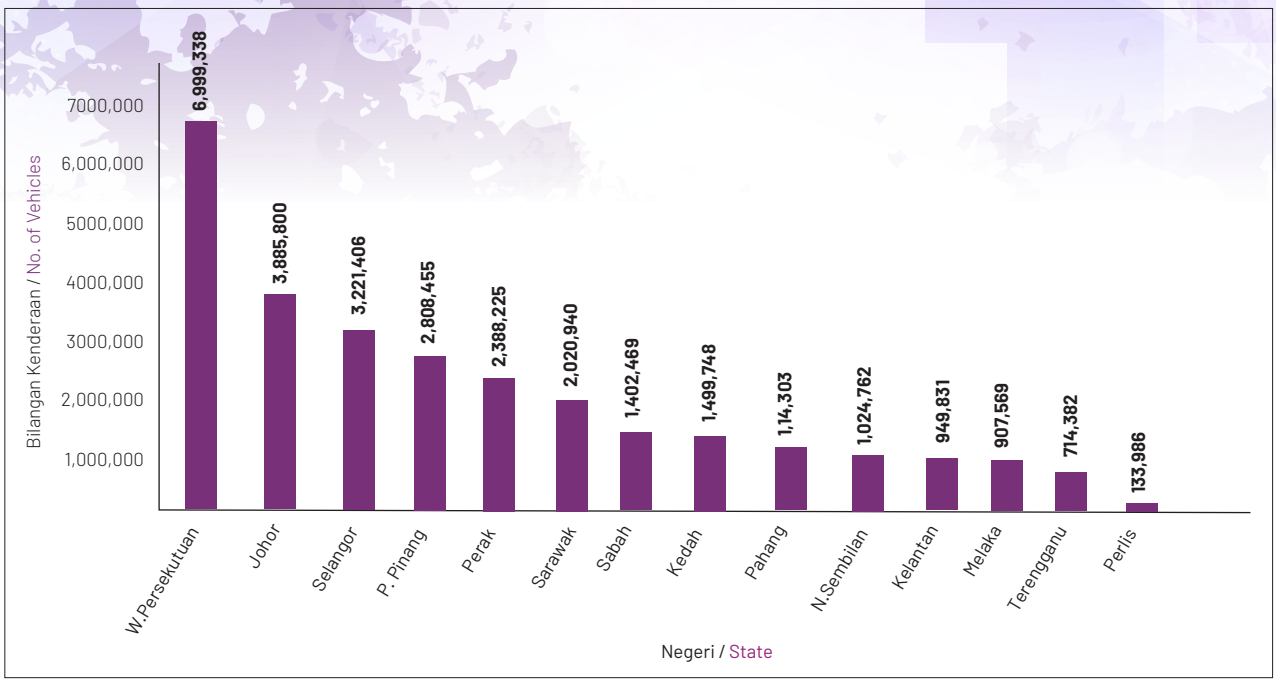
Throughout the year of 2024, 1,533,831 new vehicles were registered in Malaysia. The breakdown of the total registered vehicles according to vehicle type is shown in **Figure 3.20**. Cumulatively, as of 2024, 37,960,881 motor vehicles were registered in Malaysia.

Out of 1,533,831 new vehicles registered in 2024, cars made up the highest number with 833,218 units (53.62%), followed by motorcycles with 652,570 units (42 %), while 68,043 units (4.38%) were other vehicle types which include lorries, buses, vans, and others.

The distribution of registered vehicles in Malaysia according to states is given in **Figure 3.21**. The Federal Territories (including Kuala Lumpur, Putrajaya, and Labuan) recorded the highest number of registered vehicles with 6,999,338 units (18.44%) followed by Johor, Selangor, Penang, and Perak.



Rajah 3.20: Pecahan Keseluruhan Kenderaan Bermotor yang Berdaftar mengikut Jenis Kenderaan (Sumber: Jabatan Pengangkutan Jalan, 2024)
Figure 3.20: Total Registered Vehicles according to Vehicle Type (Source: Road Transport Department, 2024)



Rajah 3.21: Taburan Bilangan Kenderaan Bermotor di Malaysia mengikut Negeri, 2024
Figure 3.21: Distribution of Registered Vehicles According to States, 2024

KAWALAN PELEPASAN PENCEMAR DARIPADA KENDERAAN BERMOTOR

Kawalan pelepasan pencemar daripada kenderaan bermotor melibatkan dua (2) peringkat pematuhan iaitu kawalan ke atas pelepasan kenderaan baharu (pematuhan oleh pengeluar kenderaan) dan juga kawalan ke atas pelepasan kenderaan dalam penggunaan (pematuhan oleh pemilik kenderaan). Penguatkuasaan dan pemantauan membabitkan tiga (3) kategori kenderaan iaitu kenderaan berenjin diesel, kenderaan berenjin petrol dan juga motosikal.

KAWALAN PELEPASAN PENCEMAR KENDERAAN BAHARU

Kelulusan Jenis Kenderaan (Vehicle Type Approvals, VTA)

Mana-mana kenderaan baharu yang akan dipasang dan didaftarkan di Malaysia perlu melalui prosedur Kelulusan Jenis Kenderaan (VTA) yang mana semakan dan pemeriksaan ke atas kenderaan akan dijalankan oleh agensi-agensi berkaitan mengikut skop masing-masing. VTA diselaraskan oleh Jabatan Pengangkutan Jalan (JPJ) selaku agensi utama.

Bagi Jabatan Alam Sekitar (JAS), skop pemeriksaan adalah melibatkan standard pelepasan gas pencemar bagi enjin dan juga standard pelepasan bunyi bising berdasarkan standard terkini yang dilaksanakan di Malaysia. Kenderaan-kenderaan baharu yang hendak dipasang dan didaftarkan di Malaysia perlu menjalani ujian pelepasan gas pencemar bagi enjin dan juga ujian

POLLUTANTS EMISSION CONTROL FROM MOTOR VEHICLES

Emission control from motor vehicles involves two (2) levels of compliance, which are control over emissions from new vehicles (compliance by vehicle manufacturers) and also control over emissions from vehicles in use (compliance by vehicle owners). Enforcement and monitoring involves three (3) categories of vehicles which are diesel engine vehicles, petrol engine vehicles, and motorcycles.

NEW VEHICLE POLLUTANTS EMISSION CONTROL

Vehicle Type Approvals (VTA)

Any new vehicle that will be assembled and registered in Malaysia must go through Vehicle Type Approval (VTA) procedure, where the review and inspection of the vehicle will be carried out by the relevant agencies according to their respective scopes. VTA is coordinated by the Road Transport Department (JPJ) as the main agency.

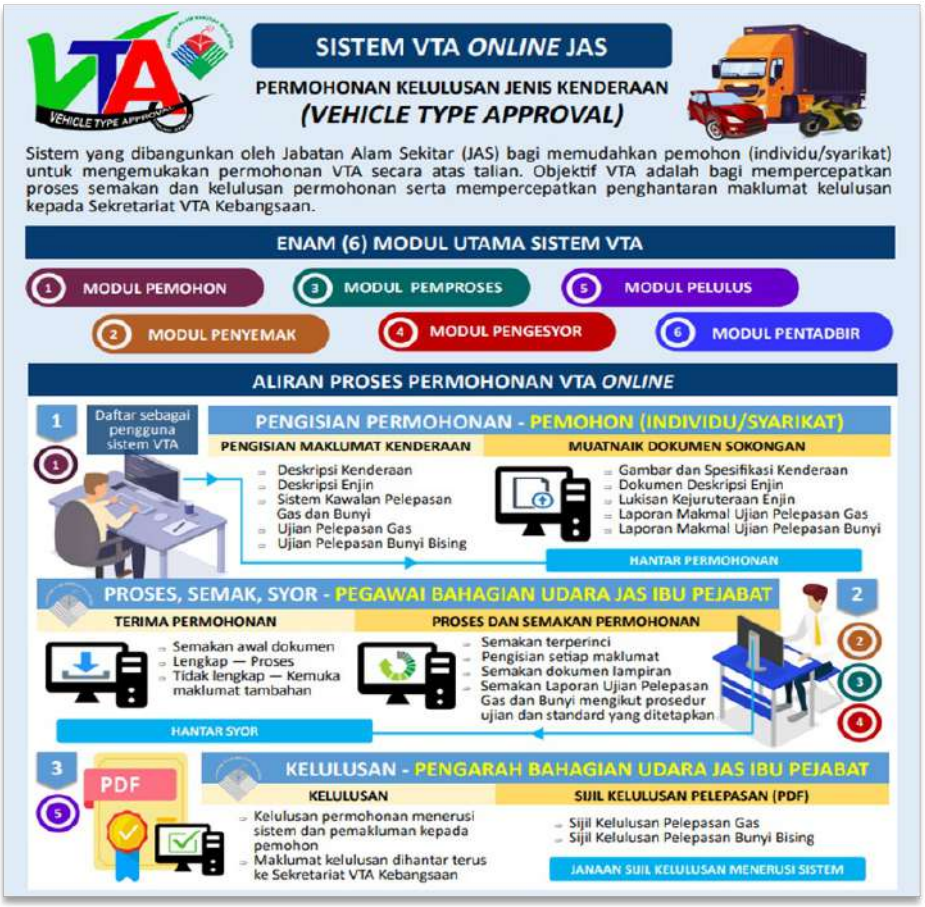
For the Department of Environment (DOE), the scope of inspection involves the emission standards for engine pollutants and the noise emission standards based on the latest standards implemented in Malaysia. New vehicles that are to be installed and registered in Malaysia must undergo exhaust gas emission tests for the engine and noise emission tests at accredited

pelepasan bunyi bising di makmal bertauliah serta memperoleh Sijil Kelulusan Pelepasan Gas dan Sijil Kelulusan Pelepasan Bunyi Bising dari JAS terlebih dahulu sebelum dibenarkan untuk didaftarkan di Jabatan Pengangkutan Jalan.

Pengeluar kenderaan yang berhasrat untuk mendaftarkan kenderaan mereka perlu mengemukakan permohonan melalui sistem VTA Online JAS beserta dokumen-dokumen berkaitan untuk semakan dan pengesahan pegawai JAS sebelum Sijil Kelulusan Pelepasan Gas dan Sijil Kelulusan Pelepasan Bunyi Bising dikeluarkan **(Rajah 3.22)**.

laboratory and obtain the Gas Emission Approval Certificate and Noise Emission Approval Certificate according to the DOE VTA procedure before being allowed to be registered with the Road Transport Department.

Vehicle manufacturers who wish to register their vehicles must apply via the DOE's VTA Online system along with relevant documents for review and verification by DOE officers before the Gas Emission Approval Certificate and Noise Emission Approval Certificate are issued **(Figure 3.22)**.



Rajah 3.22: Arkitektur Sistem atas Talian Kelulusan Jenis Kenderaan (VTA) JAS
Figure 3.22: DOE Vehicle Type Approval (VTA) Online System Architecture



Rajah 3.23: Bilangan Keseluruhan Permohonan VTA Diterima Tahun 2024
Figure 3.23: Total Number of VTA Applications Received in 2024



EURO 4	EURO 5	EURO 6	EURO 4	EURO 5	EURO 6	EURO 4	EURO 5	EURO 6
29	-	14	8	24	-	38	106	-

Rajah 3.24: Bilangan Permohonan VTA Diterima Tahun 2024 mengikut Jenis Kenderaan
Figure 3.24: Number of VTA Applications Received in 2024 by Vehicle Type

Standard Pelepasan Pencemar bagi Kenderaan Berenjin Petrol Baharu

Malaysia menerusi Jabatan Alam Sekitar (JAS) dari semasa ke semasa telah melaksanakan peningkatan standard pelepasan gas pencemar bagi kenderaan berenjin petrol dengan keterlibatan pemegang taruh (stakeholders) yang terdiri daripada pengeluar kenderaan dan agensi teknikal berkaitan. Pelaksanaan peningkatan standard pelepasan enjin petrol ini mengambil kira ketersediaan fasiliti pihak pengeluar kenderaan yang terdiri daripada pengeluar tempatan dan juga luar negara. Sesi libat urus bersama pemegang taruh dijalankan secara berkala bagi mendapatkan persetujuan bersama dan membantu pihak JAS dalam menetapkan standard terkini yang akan dilaksanakan di Malaysia.

Pelaksanaan semasa standard pelepasan gas pencemar bagi kenderaan berenjin petrol di Malaysia adalah pada peringkat Euro 4 bermula 1 Julai 2020 **(Rajah 3.25)**.

New Petrol Engine Vehicle Emission Standard

Malaysia, through the Department of Environment (DOE), has periodically implemented stricter emission standards for petrol-engine vehicles with the involvement of stakeholders, which include vehicle manufacturers and relevant technical agencies. The implementation of the enhanced petrol engine emission standards takes into account the availability of facilities from vehicle manufacturers, both local and foreign. Stakeholder engagement sessions are conducted periodically to reach a mutual agreement and assist DOE in setting the latest standards to be implemented in Malaysia.

The current implementation of the pollutant gas emission standards for petrol engine vehicles in Malaysia is at Euro 4 level starting from 1 July 202 **(Figure 3.25)**.



Rajah 3.25: Standard Pelepasan Pencemar bagi Kenderaan Berenjin Petrol Baharu
Figure 3.25: New Petrol Engine Vehicle Emission Standard

Permohonan VTA Kenderaan Berenjin Petrol Baharu

Pada tahun 2024, sebanyak 43 permohonan VTA bagi model baharu kenderaan berenjin petrol telah dikemukakan kepada JAS bagi mendapat kelulusan. Kesemua permohonan telah disemak dan diperakukan dengan Sijil Kelulusan Pelepasan Gas. Daripada jumlah 43 permohonan tersebut, sebanyak 29 permohonan adalah melibatkan enjin petrol dengan standard pelepasan Euro 4 dan 14 permohonan melibatkan enjin petrol dengan standard pelepasan Euro 6 **(Rajah 3.24)**.

Standard Pelepasan Pencemar bagi Kenderaan Berenjin Diesel Baharu

Seperti mana pelaksanaan standard pelepasan gas pencemar bagi kenderaan berenjin petrol, peningkatan standard pelepasan gas pencemar bagi kenderaan berenjin diesel juga dilaksanakan dari semasa ke semasa dengan keterlibatan pemegang taruh (stakeholders) yang terdiri daripada pengeluar kenderaan dan agensi teknikal berkaitan. Pelaksanaan peningkatan standard pelepasan enjin diesel ini juga mengambil kira ketersediaan fasiliti pihak pengeluar kenderaan. Sesi libat urus bersama pemegang taruh turut dijalankan secara berkala bagi mendapatkan persetujuan bersama dan membantu pihak JAS dalam menetapkan standard terkini yang akan dilaksanakan di Malaysia.

Pelaksanaan semasa bagi standard pelepasan gas pencemar kenderaan berenjin diesel di Malaysia adalah pada peringkat Euro 4 bermula 1 Oktober 2022 **(Rajah 3.26)**.

Permohonan VTA Kenderaan Berenjin Diesel Baharu

Pada tahun 2024, sebanyak 32 permohonan VTA bagi model baharu kenderaan berenjin diesel telah dikemukakan kepada JAS bagi mendapatkan kelulusan. Kesemua permohonan telah disemak dan diperakukan dengan Sijil Kelulusan Pelepasan Gas. Daripada jumlah 32 permohonan tersebut, sebanyak 8 permohonan adalah melibatkan enjin diesel dengan standard pelepasan Euro 4 dan 24 permohonan melibatkan enjin diesel dengan standard pelepasan Euro 5 **(Rajah 3.24)**.

New Petrol Engine Vehicle VTA Applications

In 2024, a total of 43 VTA applications for new models of petrol engine vehicles were submitted to the DOE for approval. All applications were reviewed and certified with Gas Emission Approval Certificate. Of the total 43 applications, 29 applications involved petrol engines with Euro 4 emission standards and 14 applications involved petrol engines with Euro 6 emission standards **(Figure 3.24)**.

New Diesel Engine Vehicle Emission Standard

Just like the implementation of emission standards for petrol engine vehicles, the enhancement of emission standards for diesel engine vehicles is also carried out from time to time with the involvement of stakeholders, which include vehicle manufacturers and relevant technical agencies. The implementation of the increased diesel engine emission standards also considers the availability of manufacturer facilities. Engagement sessions with stakeholders are also conducted periodically to obtain mutual agreement and assist DOE in setting the latest standards to be implemented in Malaysia.

The current implementation of diesel vehicle pollutant emission standards in Malaysia is at Euro 4 starting from 1 October 2022 **(Figure 3.26)**.

New Diesel Engine Vehicle VTA Applications

In 2024, a total of 32 VTA applications for new models of diesel engine vehicles were submitted to the DOE for approval. All applications were reviewed and certified with Gas Emission Approval Certificate. Of the total 32 applications, 8 applications involved diesel engines with Euro 4 emission standards and 24 applications involved diesel engines with Euro 5 emission standards **(Figure 3.24)**.



Rajah 3.26: Standard Pelepasan Pencemar bagi Kenderaan Berenjin Diesel Baharu
Figure 3.26: New Diesel Engine Vehicle Emission Standard

Standard Pelepasan Pencemar bagi Motosikal Baharu

Peningkatan standard pelepasan gas pencemar bagi motosikal juga dilaksanakan dari semasa ke semasa dengan keterlibatan pemegang taruh (stakeholders) yang terdiri daripada pengeluar motosikal dan agensi teknikal berkaitan. Pelaksanaan peningkatan standard pelepasan motosikal ini juga mengambil kira ketersediaan fasiliti pihak pengeluar motosikal yang terdiri daripada pengeluar tempatan dan luar negara. Sesi libat urus bersama pemegang taruh turut dijalankan secara berkala bagi mendapatkan persetujuan bersama dan membantu pihak JAS dalam menetapkan standard terkini yang akan dilaksanakan di Malaysia.

Pelaksanaan semasa standard pelepasan gas pencemar bagi motosikal adalah pada peringkat Euro 4 bermula dari 1 Januari 2020 **(Rajah 3.27)**.

New Motorcycles Emission Standard

The standard enhancement for motorcycle pollutant gas emissions is also implemented from time to time with the involvement of stakeholders, which include motorcycle manufacturers and relevant technical agencies. The implementation of the enhanced motorcycle emission standards also considers the availability of facilities from motorcycle manufacturers, both local and foreign. Engagement sessions with stakeholders are also conducted periodically to obtain mutual agreement and assist the DOE in setting the latest standards to be implemented in Malaysia.

The current implementation of the pollutant emission standard for motorcycles is at Euro 4 level starting from 1 January 2020 **(Figure 3.27)**.



Rajah 3.27: Standard Pelepasan Pencemar bagi Motosikal Baharu
Figure 3.27: New Motorcycles Emission Standard

Permohonan VTA Motosikal Baharu

Pada tahun 2024, sebanyak 144 permohonan VTA bagi model baharu motosikal telah dikemukakan kepada JAS bagi mendapatkan kelulusan. Kesemua permohonan telah disemak dan diperakukan dengan Sijil Kelulusan Pelepasan Gas Motosikal. Daripada jumlah keseluruhan 144 permohonan, sebanyak 38 permohonan melibatkan enjin motosikal dengan standard pelepasan Euro 4, manakala 106 permohonan melibatkan enjin motosikal dengan standard pelepasan Euro 5 **(Rajah 3.24)**.

Motorcycles VTA Applications

In 2024, a total of 144 VTA applications for new models of motorcycles were submitted to the DOE for approval and all applications were reviewed and certified with a Motorcycle Gas Emission Approval Certificate. Of the total 144 applications, 38 applications involved motorcycles engines with Euro 4 emission standards and 106 applications involved motorcycles engines with Euro 5 emission standards **(Figure 3.24)**.

KAWALAN PELEPASAN PENCEMAR KENDERAAN DALAM PENGGUNAAN

Kawalan Pelepasan Asap Hitam Kenderaan Diesel

Kawalan pelepasan asap hitam berlebihan dari ekzos kenderaan diesel dipantau melalui operasi statik secara bersepadu dengan agensi penguat kuasa lain (JPJ dan Polis Trafik - PDRM) dan operasi pemerhatian melalui video kamera.

Tindakan kompaun akan diambil kepada pemandu dan tuan punya kenderaan yang didapati gagal mematuhi had pelepasan asap 50% kelegapan. Kompaun serta perintah larangan (larangan mengunakan kenderaan) akan dikeluarkan sekiranya kenderaan didapati melepaskan asap melebihi 70% kelegapan.

Pada tahun 2024, sebanyak 6,225 pemeriksaan penguatkuasaan telah dilaksanakan di seluruh negara. Sejumlah 398,172 buah kenderaan diesel telah diperiksa dan sebanyak 582 buah kenderaan telah dikompaun kerana gagal mematuhi had pelepasan asap hitam sebanyak 50% kelegapan. Manakala 109 kenderaan telah dikenakan perintah larangan beroperasi sehingga lulus ujian semula asap oleh JAS. Pada keseluruhannya, peratus pematuhan oleh kenderaan diesel adalah 98.14%. Ini mencatatkan sedikit penurunan iaitu 0.13% berbanding dengan tahun 2023.

Bilangan kenderaan diesel yang dikompaun dan peratus pematuhan mengikut jenis kenderaan adalah seperti yang ditunjukkan di **Rajah 3.28**. **Rajah 3.29** pula menunjukkan bilangan kenderaan dikompaun, pengeluaran perintah larangan serta peratus pematuhan mengikut negeri. Tindakan mahkamah juga telah diambil ke atas lima (5) pemandu serta pemilik kenderaan kerana gagal menjelaskan kompaun yang telah dikenakan. Sejumlah 784 kenderaan diesel juga telah diarahkan untuk menjalani ujian semula asap di PUSPAKOM.

IN-USE VEHICLES POLLUTANTS EMISSION CONTROL

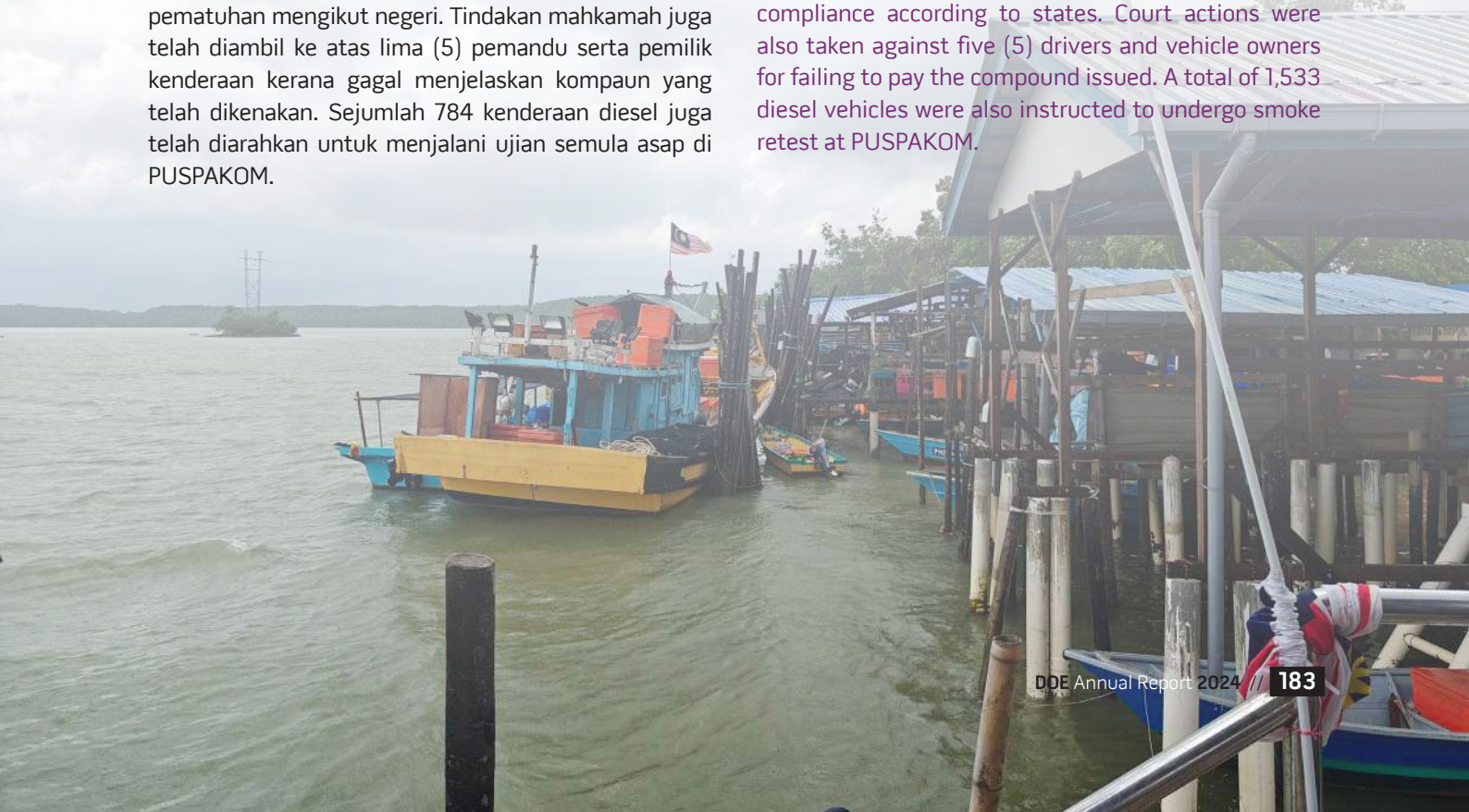
Control of Black Smoke Emission from Diesel Vehicles

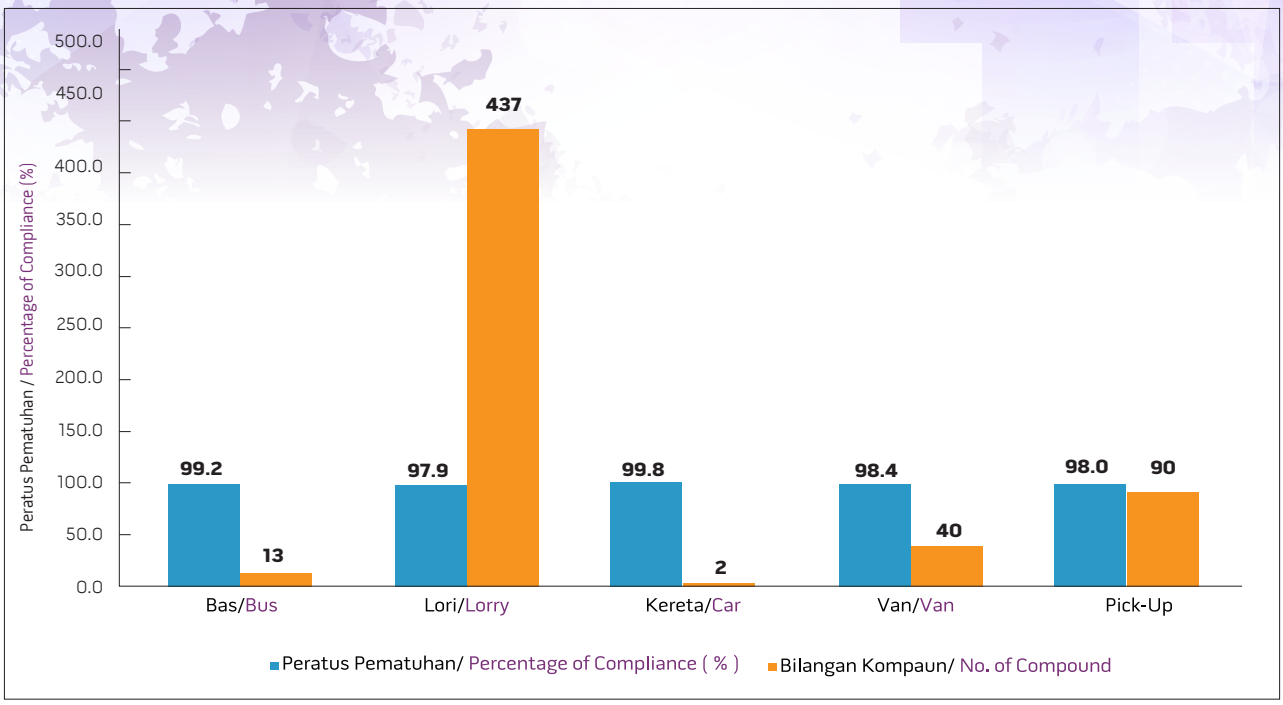
The control of black smoke emission from diesel vehicle exhausts is monitored through curbside operation with other enforcement agencies (RTD and Royal Malaysia Traffic Police) and camera video surveillance.

Compounds were issued to drivers and vehicle owners who failed to comply with the stipulated smoke limit of 50% opacity. Compounds and prohibition orders (prohibiting vehicle use) would be issued if smoke emitted by the vehicles exceeded 70% opacity.

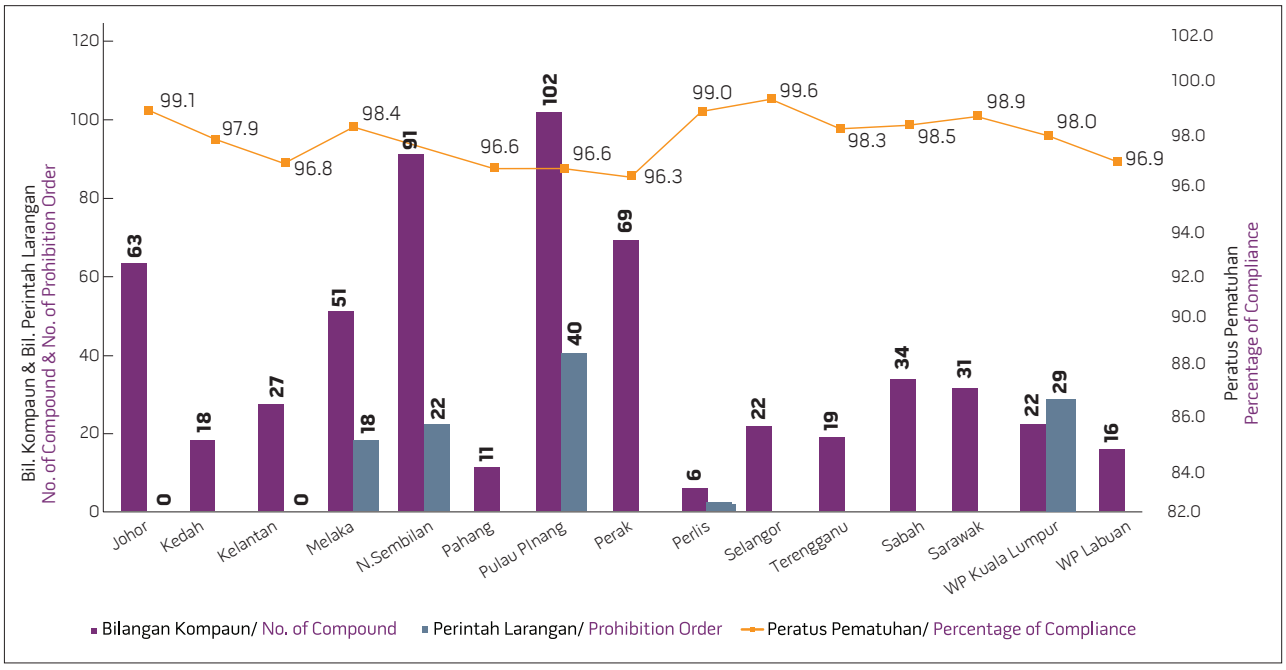
In 2024, 6,225 enforcement inspections were conducted throughout the country. A total of 398,172 diesel vehicles were visually inspected. Out of these, 582 were compounded for failing to comply with the 50% opacity smoke limit, while 109 vehicles were issued with prohibition order. These vehicles will need to be sent for service and smoke retest by DOE. The percentage of compliance of diesel vehicles to the standard stipulated in the regulations was 98.14%. This is a decrease of 0.13% compared to 2023.

The number of compounds issued to diesel vehicles and their percentage of compliance according to vehicle type are shown in **Figure 3.28**. **Figure 3.29** shows the number of vehicles compounded, number of prohibition orders issued, and the percentage of compliance according to states. Court actions were also taken against five (5) drivers and vehicle owners for failing to pay the compound issued. A total of 1,533 diesel vehicles were also instructed to undergo smoke retest at PUSPAKOM.





Rajah 3.28: Bilangan Kenderaan Diesel yang Dikompaun dan Peratus Pematuhan mengikut Jenis Kenderaan, 2024
Figure 3.28: Number of Compounds Issued to Diesel Vehicles and Percentage of Compliance According to Vehicle Type, 2024



Rajah 3.29: Bilangan Kenderaan Diesel Dikompaun, Perintah Larangan yang Dikeluarkan & Peratus Pematuhan mengikut Negeri, 2024
Figure 3.29: Number of Diesel Vehicles Compounded, Number of Prohibition Orders Issued & Percentage of Compliance by States, 2024



▲ Operasi Kawalan Pelepasan Asap Hitam Kenderaan Diesel yang telah Dijalankan di Seluruh Negara pada Tahun 2024
Black Smoke Emissions Control from Diesel Vehicles Operations Conducted Throughout the Country in 2024

Kawalan Pelepasan Gas CO dan HC Kenderaan Petrol

Sepanjang tahun 2024, sejumlah 634 buah kenderaan berenjin petrol telah diuji pelepasan CO dan HC dengan menggunakan meter gas CO-HC Analyzer melalui kaedah ujian melahu (idling) di jalan raya. Dari jumlah ini, sebanyak 21 buah kenderaan telah dikompaun kerana gagal mematuhi had pelepasan yang ditetapkan. Peratus pematuhan keseluruhan adalah 96.69% iaitu peningkatan sebanyak 2.59% berbanding dengan tahun 2023. Surat amaran juga telah dikeluarkan kepada pemandu-pemandu kenderaan yang gagal mematuhi had-had pelepasan CO dan HC supaya segera menyelenggara kenderaan bagi memastikan kenderaan sentiasa mematuhi had pelepasan yang ditetapkan oleh undang-undang.

Kawalan Pelepasan Bunyi Bising Motosikal

Pelepasan bunyi bising daripada kenderaan bermotor dikawal di bawah Peraturan-peraturan Kualiti Alam Sekeliling (Bunyi Bising Kenderaan Motor) 1987.

Operasi penguatkuasaan bagi mengawal pelepasan bunyi bising daripada motosikal telah dilaksanakan oleh pejabat-pejabat JAS Negeri dengan kerjasama Polis Trafik, Polis Diraja Malaysia (PDRM). Pada tahun 2024, sejumlah 5,945 buah motosikal telah ditahan bagi menjalani ujian pelepasan bunyi bising. Daripada jumlah ini, 751 penunggang motosikal telah dikompaun kerana melanggar had bunyi bising yang dibenarkan. Peratus pematuhan secara keseluruhan ialah 49.63% **(Rajah 3.30).** Ini merupakan peningkatan sebanyak 1.53% berbanding dengan 2023.

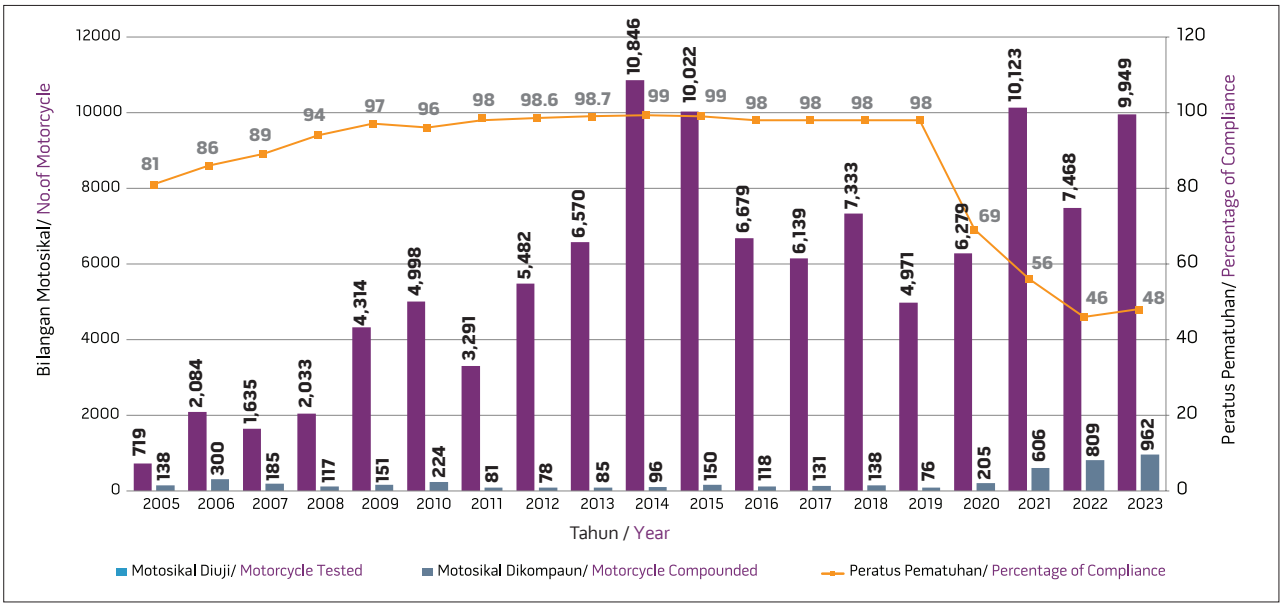
Control of CO and HC Gas Emissions from Petrol Vehicles

Throughout the year of 2024, a total of 634 petrol engine vehicles were inspected at the roadside for CO and HC emissions using the CO-HC Analyzer Gas Meter with idling test method. 21 vehicles were compounded for failing to comply with the CO and HC standards stipulated under the regulations. The overall percentage of compliance was 96.69%, which is a decrease of 2.59% compared to 2023. Warning letters were issued to drivers instructing them to send their vehicles for immediate servicing so that the vehicles will not continue to emit gaseous above the standards stipulated by the law.

Control of Noise Emissions from Motorcycles

The emission of noise from motor vehicles is enforced under the Environmental Quality (Motor Vehicle Noise) Regulations 1987.

Enforcement operations to control noise from motorcycles were conducted by DOE State with cooperation from Royal Malaysia Police (PDRM) Traffic Branch. In 2024, a total of 5,945 motorcycles were inspected for noise emission level. Out of this, 751 motorcyclists were compounded for emitting noise above the stipulated standards. The overall percentage of compliance is 49.63% **(Figure 3.30),** an increase of 1.53% compared to 2023.



Rajah 3.30: Peratus Pematuhan Bilangan Motosikal Diuji Tahap Bunyi Bising dan Bilangan Kompaun bagi Tempoh 2005 sehingga 2024
Figure 3.30: Percentage of Compliance of Motorcycles Tested for Noise Emission and Compounds Issued from Year 2005 to 2024






▲ Operasi Kawalan Pelepasan Gas CO-HC daripada Kenderaan Petrol & Kawalan Pelepasan Bunyi Bising Motosikal yang telah Dijalankan di Seluruh Negara Pada Tahun 2024
CO-CH Gaseous Emissions Control from Petrol Vehicles & Noise Emissions from Motocycles Operations Conducted Throughout the Country in 2024

Kemudahan Yang Diluluskan (KYDL)

JAS telah memberi pengiktirafan kepada bengkel-bengkel kenderaan yang memenuhi kriteria yang telah ditetapkan bagi memudahkan orang awam menghantar kenderaan mereka untuk menjalani ujian pelepasan asap dan gas. Kemudahan ini boleh bertindak sebagai pengujian segera di mana kenderaan yang tidak patuh diperbaiki di pusat yang dilesenkan supaya dapat memastikan kenderaan sentiasa mematuhi had pelepasan asap.

Sehingga akhir tahun 2024, sejumlah 55 sijil pengiktirafan telah dikeluarkan kepada bengkel serta pusat pemeriksaan kenderaan di seluruh negara sebagai KYDL oleh JAS.

PUSPAKOM adalah satu pusat pengujian pelepasan kenderaan yang bertauliah dan mempunyai pensijilan KYDL. Sepanjang Tahun 2024, lawatan audit PUSPAKOM telah dijalankan oleh JAS ke PUSPAKOM Kota Samarahan, Bangi, Banting, PJ City dan Cheras.

Approved Testing Facilities (KYDL)

DOE has given accreditation to workshops that fulfilled the criteria as approved testing facilities to assist 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 regulations.

By the end of 2024, a total of 55 certificates of accreditation were issued to the workshops and vehicle testing centers throughout the country as "Approved Testing Facilities" by DOE.

PUSPAKOM is a certified vehicle emissions testing center and holds KYDL certification. Throughout 2024, audit visit to PUSPAKOM was conducted by the Department of Environment (DOE) at PUSPAKOM Kota Samarahan, Bangi, Banting, PJ City, and Cheras.







▲ Lawatan Audit PUSPAKOM yang telah Dijalankan pada Tahun 2024 / PUSPAKOM Audit Visit conducted in 2024

Pelaksanaan Operasi Gerak (Ops Gerak)

Pada tahun 2024, JAS telah melaksanakan Ops Gerak di seluruh negara bagi meningkatkan lagi pemeriksaan ke atas pelepasan daripada kenderaan bermotor. Sebanyak 444 operasi telah dilakukan ke atas 25,436 kenderaan. Susulan penguatkuasaan Ops Gerak tersebut, 1,280 tindakan tawaran kompaun dan 109 tindakan perintah larangan telah dikeluarkan.

Ops Gerak meliputi Operasi Statik dan Operasi AWASI (Area Watch and Sanction Inspection). Operasi Statik dijalankan secara bersepadu oleh pegawai JAS bersama-sama pihak agensi penguat kuasa lain seperti Jabatan Pengangkutan Jalan (JPJ), Polis Diraja Malaysia (PDRM), Agensi Antidadah Kebangsaan (AADK) dan sebagainya. Operasi AWASI ialah operasi di mana pasukan JAS menjalankan rondaan dan pemantauan bagi kenderaan-kenderaan yang melepaskan asap hitam atau gas berlebihan. Kenderaan yang dikenal pasti ditahan dan diuji pelepasan daripada ekzos.

Enforcement through 'Operasi Gerak' (Ops Gerak)

In the year 2024, DOE has carried out Ops Gerak to enhance its enforcement strategies and actions against incompliant emissions from motor vehicles. A total of 444 operations were conducted involving 25,436 motor vehicles. Following the enforcement of Ops Gerak, 1,280 compounds and 109 prohibition orders were issued.

Ops Gerak consists of Static Operations and AWASI Operations (Area Watch and Sanction Inspection). Static Operations are carried out in collaboration with other agencies such as Road Transport Department (JPJ), Royal Malaysia Police (PDRM), National Anti-Drugs Agency (AADK), and others. AWASI Operations involve DOE patrol and monitoring towards vehicles that emit excessive black smoke or gases. Identified vehicles are stopped and tested for exhaust emissions.









◀ Operasi Gerak yang telah Dijalankan pada Tahun 2024
Operasi Gerak Conducted in 2024

Ops Gerak Bersepadu Peringkat Kebangsaan

Pada 13 November 2024, Operasi Gerak Kenderaan Bermotor Peringkat Kebangsaan Sempena Sambutan Hari Ozon Sedunia 2024 telah diadakan secara serentak oleh Jabatan Alam Sekitar (JAS) di seluruh negara. Majlis perasmian Ops Gerak ini telah dirasmikan oleh Menteri Sumber Asli dan Kelestarian Alam (NRES), YB Nik Nazmi bin Nik Ahmad yang diadakan di Hentian Rehat dan Rawat (R&R) Awan Besar, Lebuhraya Shah Alam (KESAS), Selangor.

Sepanjang Ops Gerak yang diadakan pada hari tersebut, sebanyak 1,353 buah kenderaan telah diperiksa. Sebanyak 50 tawaran kompaun telah dikeluarkan atas kesalahan pelepasan bahan pencemar melebihi standard. Ops Gerak Kebangsaan ini melibatkan kerjasama empat agensi penguat kuasa iaitu Jabatan Alam Sekitar, Polis Diraja Malaysia (PDRM), Jabatan Pengangkutan Jalan (JPJ) dan Agensi Antidadah Kebangsaan (AADK).

National Integrated Enforcement Operation

On 13 November 2024, the National Level Motor Vehicle Ops Gerak in conjunction with the World Ozone Day 2024 Celebration was held simultaneously by Department of Environment (DOE) nationwide. The opening ceremony of Ops Gerak was officiated by the Minister of Natural Resources and Environmental Sustainability (NRES), YB Nik Nazmi bin Nik Ahmad which was held at the Awan Besar Rest and Treatment (R&R) Stop, Shah Alam Highway (KESAS), Selangor.

During the Ops Gerak held that day, a total of 1,353 vehicles were inspected with a total of 50 compound offers issued for the offence of emitting pollutants exceeding the standard. The National Ops Gerak involves the cooperation of four enforcement agencies, namely Department of Environment (DOE), Royal Malaysian Police (PDRM), Road Transport Department (JPJ), and National Anti-Drugs Agency (AADK).



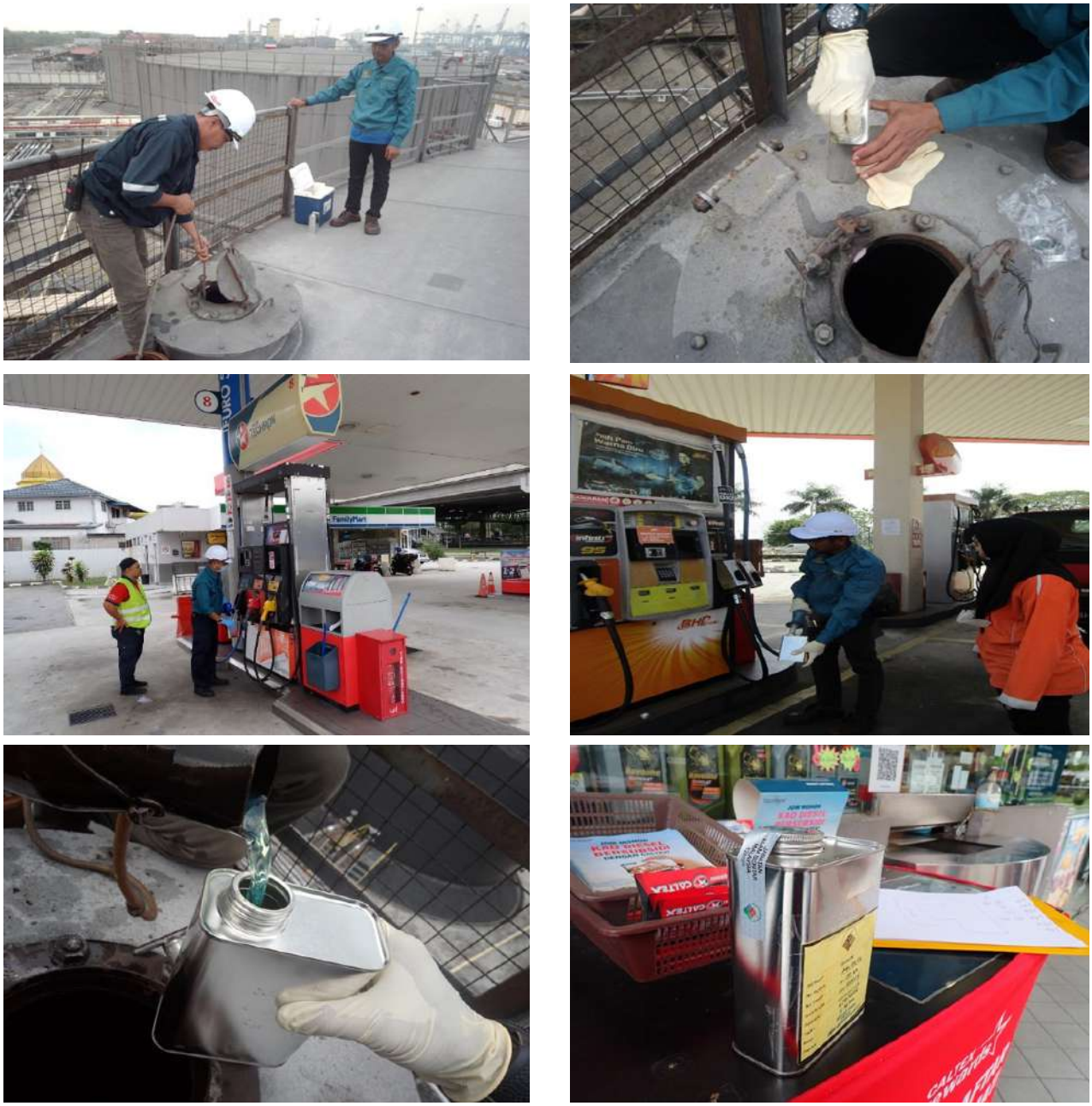
▲ Operasi Gerak Bersepadu Peringkat Kebangsaan, 2024
National Integrated Operasi Gerak, 2024

PROGRAM PENGUATKUASAAN KAWALAN KANDUNGAN BAHAN API PETROL DAN DIESEL

Jabatan Alam Sekitar juga menjalankan penguatkuasaan ke atas kandungan bahan api petrol dan diesel mengikut kehendak Peraturan-Peraturan Kualiti Alam Sekeliling (Kawalan Kandungan Petrol dan Diesel) 2007. Penguatkuasaan ini dijalankan di terminal minyak, depoh simpanan dan stesen-stesen minyak

CONTROL OF PETROL AND DIESEL FUEL PROPERTIES ENFORCEMENT PROGRAMME

Department of Environment also enforces regulation on the properties of petrol dan diesel fuel in accordance with the Environmental Quality (Control of Petrol and Diesel Properties) Regulations 2007. This enforcement is carried out at oil terminals, storage depots, and petrol stations.



▲ Program Penguatkuasaan Kawalan Kandungan Bahan Api Petrol & Diesel, 2024
Control of Petrol & Diesel Fuel Properties Enforcement Programme, 2024

PENGUKUHAN UNIT PENGUATKUASAAN KENDERAAN BERMOTOR JAS NEGERI

Perolehan Alat Pengukuran Gas (Gas Analyser) bagi Penguatkuasaan Pelepasan Kenderaan Berenjin Petrol

Pada tahun 2024, sebanyak 14 unit alat pengukuran gas (gas analyser) telah diperoleh Jabatan Alam Sekitar dan telah diedarkan kepada semua JAS Negeri. Peralatan baru ini menggunakan model dan teknologi yang terkini bagi memastikan program penguatkuasaan berjalan dengan lebih lancar dan efisien. Latihan peralatan telah dibuat mengikut zon kepada semua pegawai penguat kuasa terlibat.

STRENGTHENING OF DOE STATE MOTOR VEHICLE ENFORCEMENT UNIT

Procurement of Gas Measurement Equipment (Gas Analyser) for the Enforcement of Emissions from Petrol-Engine Vehicles

In 2024, a total of 14 units of gas measurement devices (gas analyser) were acquired by the Department of Environment and distributed to all DOE State Offices. This new equipment uses the latest models and technology to ensure that the enforcement programme runs smoothly and efficiently. Equipment training has been conducted to all enforcement officers involved according to zones.



▲ Sesi Latihan dan Serahan Alat Gas Analyser, 2024
Training and Distribution Session of Gas Analyser, 2024

Mesyuarat Penyelarasan Penguatkuasaan Kawalan Pelepasan Kenderaan Bermotor 2024

Mesyuarat Penyelarasan Penguatkuasaan Kawalan Pelepasan Kenderaan Bermotor 2024 telah diadakan pada 24 - 26 April 2024 bertempat di Hotel Dorsett, Putrajaya. Mesyuarat tersebut telah membincangkan isu-isu penguatkuasaan pelepasan daripada kenderaan bermotor serta hala tuju penguatkuasaan di Malaysia. Demontrasi peralatan pengukuran gas Karbon Monoksida dan Hidrokarbon bagi kenderaan berenjin petrol juga telah dijalankan. Mesyuarat dihadiri oleh pasukan Unit Kenderaan Bermotor daripada semua JAS Negeri dan Bahagian-Bahagian terlibat.

Coordination Meeting on the Enforcement of Motor Vehicle Emission Control

The Coordination Meeting on the Enforcement of Motor Vehicle Emission Control 2024 was held from 24 - 26 April 2024 at Hotel Dorsett, Putrajaya. The meeting discussed issues related to the enforcement of emissions from motor vehicles as well as the future direction of enforcement efforts in Malaysia. A demonstration of Carbon Monoxide and Hydrocarbon gas measurement equipment for petrol-powered vehicles was also conducted. The meeting was attended by the Motor Vehicle Unit teams from all DOE State and relevant Divisions.



▲ Mesyuarat Penyelarasan Penguatkuasaan Kawalan Pelepasan Kenderaan Bermotor, 2024
Coordination Meeting on the Enforcement of Motor Vehicle Emission Control, 2024






▲ Mesyuarat Penyelarasan Penguatkuasaan Kawalan Pelepasan Kenderaan Bermotor, 2024 / Coordination Meeting on the Enforcement of Motor Vehicle Emission Control, 2024

LIBAT URUS BERSAMA PEMEGANG TARUH INDUSTRI KENDERAAN MOTOR

Libat Urus bersama Persatuan Automotif Malaysia (Malaysia Automotive Association, MAA)

Libat urus telah diadakan pada 1 Ogos 2024 di JAS Ibu Pejabat Putrajaya. Tujuan diadakan sesi libat urus tersebut adalah bagi membincangkan perkara-perkara yang berkaitan dengan pelaksanaan standard pelepasan kenderaan bermotor baharu yang sedang dan akan dilaksanakan. Sesi libat urus telah dihadiri oleh pegawai-pegawai dari Seksyen Kenderaan Bermotor dan Seksyen Ozon, Bahagian Udara, JAS Ibu Pejabat serta ahli-ahli persatuan MAA yang terdiri dari syarikat-syarikat pengeluar dan pengimport kenderaan bermotor yang utama di Malaysia. Turut hadir ke sesi libat urus tersebut adalah wakil bukan ahli MAA yang terdiri daripada wakil Proton dan Perodua. Sesi libat urus antara JAS dengan pihak MAA merupakan program yang dijalankan secara berterusan dari semasa ke semasa bagi membincangkan serta mendapatkan persetujuan bersama antara JAS dan pemegang taruh (stakeholders) industri kenderaan motor terhadap pelaksanaan standard pelepasan kenderaan bermotor terkini.

ENGAGEMENT WITH MOTOR VEHICLES INDUSTRY STAKEHOLDERS

Engagement with Malaysia Automotive Association (MAA)

The engagement session was held on 1 August 2024 at the DOE Headquarters in Putrajaya. The purpose of the engagement session was to discuss matters related to the implementation of new motor vehicle emission standards that are currently being implemented and will be implemented. The engagement session was attended by officers from the Motor Vehicle Section and Ozone Section, Air Division, DOE Headquarters as well as members of the MAA association consisting of the main motor vehicle manufacturing and importing companies in Malaysia. Also present at the engagement session were non-MAA members representatives from Proton and Perodua. The engagement session between DOE and MAA is a programme that is carried out continuously from time to time to discuss and obtain mutual agreement between DOE and stakeholders in the motor vehicle industry on the implementation of the latest motor vehicle emission standards.




▲ Sesi Libat Urus bersama Persatuan Automotif Malaysia, MAA pada 1 Ogos 2024
Engagement Session with Malaysia Automotive Association on 1 August 2024

Libat Urus bersama Agensi Teknikal Berkaitan bagi Membincangkan Isu Ketidakpatuhan Pelepasan Ekzos daripada Kenderaan Bermotor

Libat urus telah diadakan pada 12 Ogos 2024 di JAS Ibu Pejabat Putrajaya. Tujuan diadakan sesi libat urus tersebut adalah bagi membincangkan isu ketidakpatuhan pelepasan asap hitam kenderaan diesel dari Malaysia yang memasuki Singapura. Ini adalah susulan daripada isu tersebut yang telah dibangkitkan oleh Singapura semasa mesyuarat bilateral Malaysia Singapore Joint Committee on the Environment 'Expert Group' Vehicular Emissions (MSJCE 'EG' VE) yang telah diadakan pada 15 Mei 2024 di Kuala Lumpur. Perbincangan bersama-sama agensi teknikal berkaitan adalah bagi mencari jalan untuk menyelesaikan isu ketidakpatuhan tersebut memandangkan pihak JAS telah melaksanakan pelbagai inisiatif bagi penambahbaikan tahap pelepasan kenderaan bermotor dengan peningkatan kualiti bahan api diesel ke Euro 5 dan juga penaiktarafan standard pelepasan enjin kenderaan diesel baharu ke Euro 4 (pelaksanaan semasa).

Engagement with Relevant Technical Agencies to Discuss the Exhaust Emission Non-Compliance Issue from Motor Vehicle

The engagement was held on 12 August 2024 at DOE Headquarters in Putrajaya. The purpose of the engagement session was to discuss the non-compliance issue of black smoke emissions from diesel vehicles from Malaysia entering Singapore. This was due to the matter being raised by Singapore during the bilateral meeting of the Malaysia Singapore Joint Committee on the Environment 'Expert Group' Vehicular Emissions (MSJCE 'EG' VE) which was held on 15 May 2024 in Kuala Lumpur. The discussion with the relevant technical agencies was to find a way to resolve the issue of non-compliance given that the DOE has implemented initiatives to improve motor vehicle emissions levels by increasing the quality of diesel fuel to Euro 5 and upgrading the emission standards of new diesel vehicle engines to Euro 4 (current implementation).



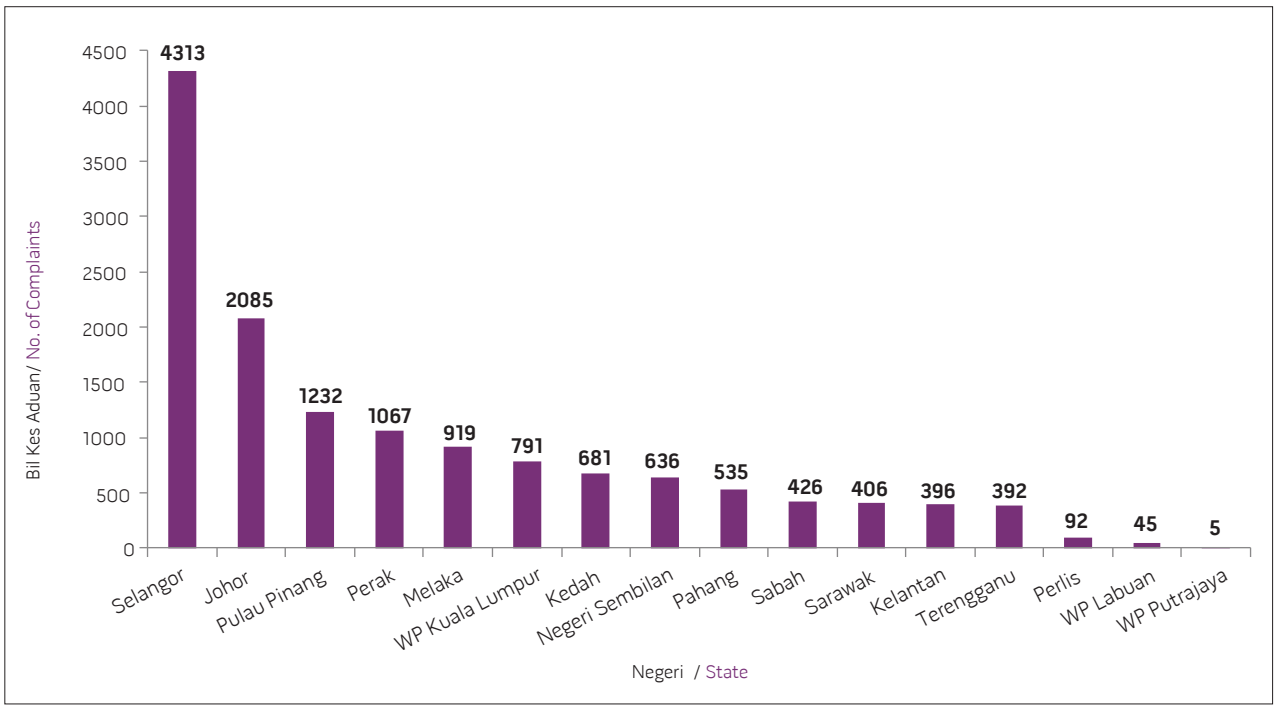
▲ Sesi Libat Urus bersama Agensi Teknikal Berkaitan pada 12 Ogos 2024
Engagement Session with Relevant Technical Agencies on 12 August 2024

MAKLUM BALAS TERHADAP PENGADUAN AWAM

Pada tahun 2024, sejumlah 14,021 aduan pencemaran alam sekitar telah diterima oleh Jabatan Alam Sekitar. 10,652 kes aduan telah diambil tindakan di bawah peruntukan Akta Kualiti Alam Sekeliling (AKAS) 1974 dan peraturan-peraturan di bawahnya oleh pejabat JAS Negeri, manakala 3,369 kes aduan adalah di luar bidang kuasa JAS dan telah dirujuk kepada agensi lain yang berkaitan untuk diambil tindakan **(Rajah 3.31)**.

RESPONSE TO PUBLIC COMPLAINTS

Department of Environment received 14,024 environmental pollution complaints in the year of 2024. Out of these, 10,652 were under the Environmental Quality Act, 1974 and investigated by the DOE State Offices, while the remaining 3,369 cases were outside the jurisdiction of DOE and were referred to other relevant agencies **(Figure 3.31)**.



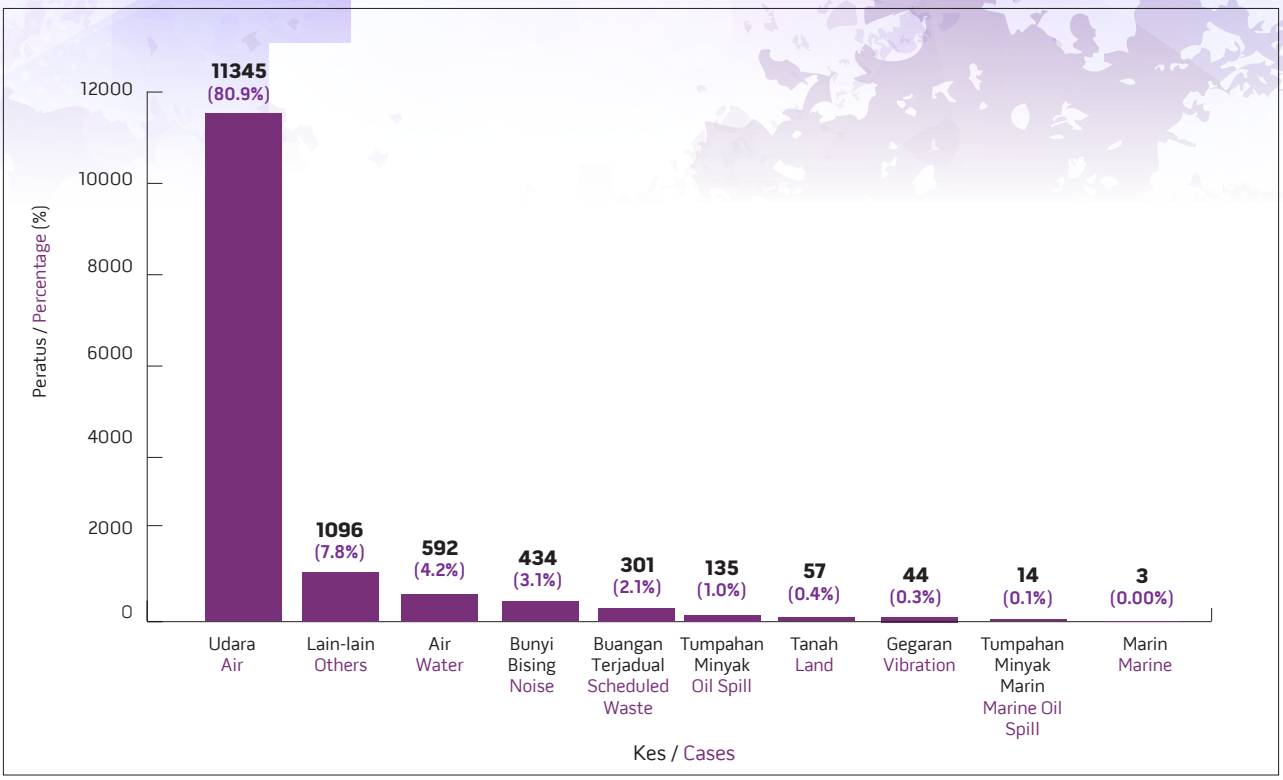
▲ Rajah 3.31: Bilangan Aduan mengikut Negeri, 2024
Figure 3.31: Number of Complaints by State, 2024

Pada tahun 2024, Selangor menerima aduan yang tertinggi iaitu sebanyak 4,313 kes (30.76%), diikuti oleh Johor sebanyak 2,085 kes (14.87%) dan Pulau Pinang sebanyak 1,232 kes (8.79%). Wilayah Persekutuan Putrajaya menerima aduan yang paling sedikit iaitu sebanyak 5 kes (0.04%) dan diikuti dengan Wilayah Persekutuan Labuan iaitu sebanyak 45 kes (0.32%).

Seperti tahun-tahun yang sebelumnya, bilangan aduan pencemaran yang tertinggi adalah berkaitan dengan pencemaran udara iaitu 11,345 kes (80.91%), 1,096 kes (7.82%) berkaitan pencemaran air, 491 kes (3.50%) berkaitan pencemaran bunyi dan gegaran, 301 kes (2.15%) berkaitan buangan terjadual, 149 kes (1.06%) berkaitan tumpahan minyak, 3 kes (0.02%) berkaitan marin, 44 kes (0.31%) berkaitan pencemaran tanah dan 592 kes (4.22%) adalah lain-lain aduan **(Rajah 3.32)**.

In the year 2024, Selangor recorded the highest number of complaints received at 4,313 (30.76%) cases, followed by Johor 2,085 (14.87%) and Pulau Pinang 1,232 (8.79%). Federal Territory of Putrajaya recorded the least number of complaints received with 5 (0.04%) complaints and followed by Federal Territory of Labuan 45 cases (0.32%).

As in the previous years, most of the complaints received were related to air pollution 11,345 (80.91%), followed by 1,096 (7.82%) water pollution, 491 (3.50%) noise pollution and vibration, 301 (2.15%) on illegal dumping of scheduled or toxic wastes, 149 (1.06%) oil spillage, 3 (0.02%) marine, 44 (0.31%) land pollution, and 592 (4.22%) of other complaints **(Figure 3.32)**.



▲ Rajah 3.32: Bilangan Kes Aduan mengikut Jenis, 2024
Figure 3.32: Number of Complaint Cases by Types, 2024



SEBAHAGIAN KES TERPILIH YANG MERLIBATKAN PEGADUAN AWAM PADA TAHUN 2024
SELECTED CASES INVOLVING PUBLIC COMPLAINTS IN 2024







Pelupusan Haram Buangan yang Disyaki Buangan Terjadual
Illegal Disposal of Waste Suspected to be Scheduled Waste
11 Januari 2024 / 11 January 2024
Kawasan Perindustrian Pengkalan 2, Daerah Kinta, Perak





Kebakaran Belukar di Tanah Gambut / Bush Fire on Peat Land
19 Mac 2024 / 19 March 2024
Mukim Jorak, Muar, Johor







▲ Aduan Kemalangan Lori Membawa Muatan Buangan Terjadual SW104 di KM 262.7 Lebuhraya Utara Selatan (PLUS) dari Arah Ipoh Menghala ke Terowong Menora / Accident Complaint of a Lorry Carrying a Load of Scheduled Waste SW104 at KM 262.7 of the North-South Expressway (PLUS) from the Direction of Ipoh towards the Menora Tunnel

24 Mac 2024 / 24 March 2024 Terowong Menora, Perak





Aduan Kejadian Pelupusan Haram di Kebun Kelapa
Complaints About Illegal Disposal Incidents in Oil Palm Plantations

5 Julai 2024 / 5 July 2024

Simpang Dua, 32010 Sitiawan, Perak



▲ Pelupusan Haram Buangan Terjadual / Illegal disposal of Scheduled Waste
14 Oktober 2024 / 31 October 2024
Bukit Pelandok, Negeri Sembilan







▲ Kilang haram Buangan Terjadual / Illegal Scheduled Waste factory

7 Mac 2024 / 7 March 2024

Jalan Klang Banting, Jenjarom, Kuala Langat, Selangor







▲ Aduan Pencemaran di Sungai Buloh / Complaint of Pollution at Sungai Buloh

11 Disember 2024 / 11 December 2024

Kawasan Perindustrian Pasir Gudang, 81700 Pasir Gudang, Johor









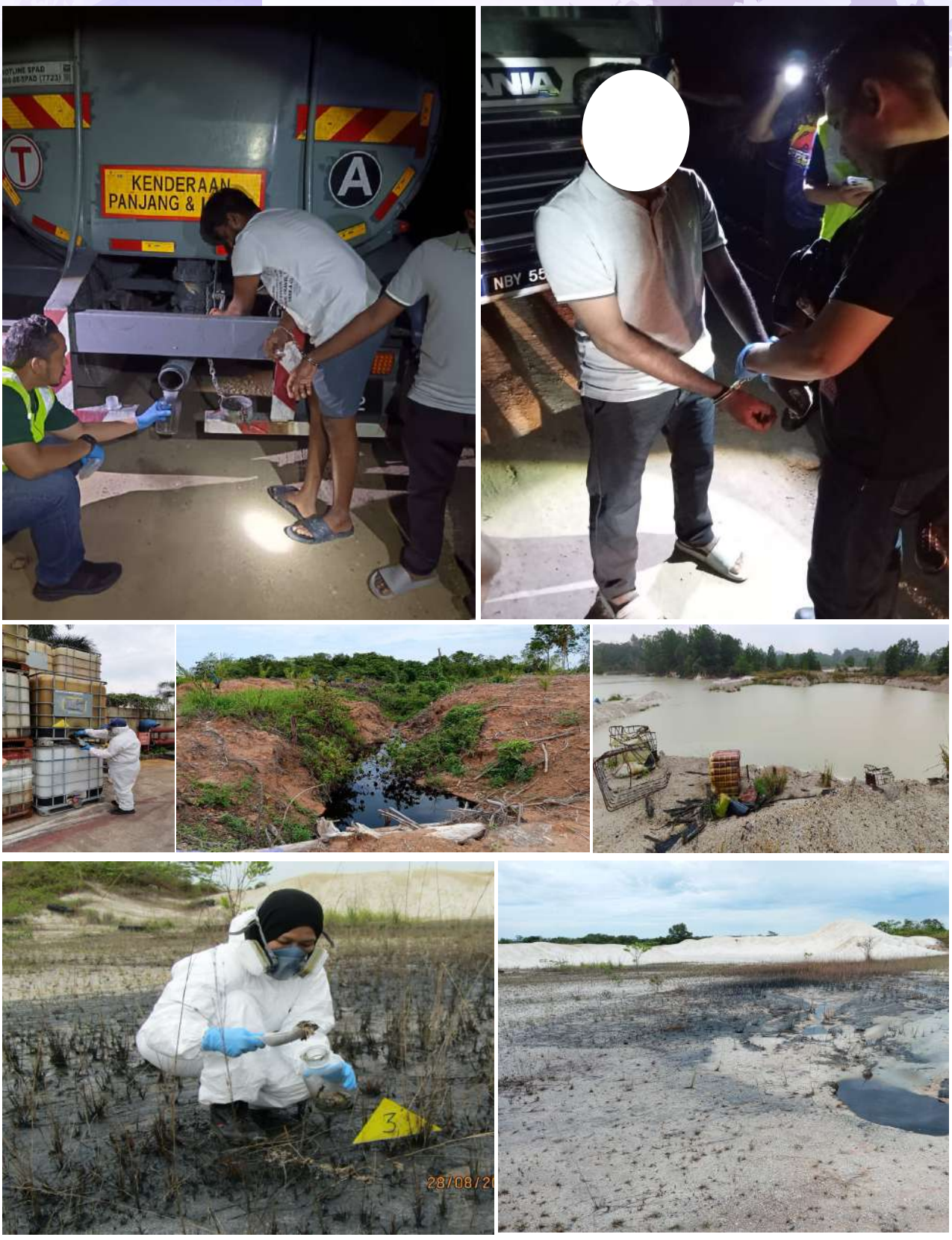


▲ Aduan Ikan Mati / Complaints of Dead Fish
☐ 11 Januari 2024 / 11 January 2024
📌 Sungai Klang, Kuala Lumpur





▲ Aduan Pencemaran Bau / Odour Pollution Complaints
☐ 3 September 2024 / 3 September 2024
📌 Kampung Melayu Pandan, Johor



Aduan Pelupusan Haram Bahan Kimia / Complaint of Illegal Disposal of Chemicals
4 September 2024 / 4 September 2024
Kampung Orang Asli, Pasir Intan, Bandar Tenggara, Johor



▸ Aduan Pencemaran Minyak/ Oil Pollution Complaints
🗓 1 Januari 2024/ 1 January 2024 📌 Sungai Johor, Kawasan Jeti Nam Heng, Kampung Tengah Sungai Tiram, Johor



▸ Kebakaran Tapak Pelupusan Sampah / Landfill Fire Complaints
🗓 24 Mac 2024 / 24 March 2024 📌 Buloh Kasap, Segamat, Johor





▲ Aduan tumpahan minyak coolant / Coolant oil spill complaints
🗓 17 Januari 2024 / 17 January 2024 📌 Kuala Ketil, Kedah











▲ Aduan Tumpahan Susu Getah / Latex Spill Complaints
🗓 29 Jun 2024 / 29 June 2024 📌 Lebuh Raya PLUS Utara – Selatan, Alor Setar, Kedah PLUS North-South Highway, Alor Setar, Kedah






▸ Kebakaran Kawasan Penstoran Buangan Terjadual / Scheduled Waste Storage Area Fire
☐ 12 April 2024 / 12 April 2024 📌 Port Dickson, Negeri Sembilan






▸ Aduan Pencemaran Air / Water Pollution Complaints
☐ 11 Disember 2024 / 12 December 2024 📌 Kangar, Perlis







▲ Aduan kilang haram / Illegal Factory Complaints
🗓 11 Oktober 2024 / 11 October 2024 📌 Kuala Langat, Banting, Selangor









▲ Pelupusan haram Buangan Terjadual
Illegal disposal of Scheduled Waste
🗓 2 Januari 2024 / 2 January 2024
📌 Kemaman, Terengganu

TINDAKAN UNDANG-UNDANG

Pendakwaan

Pada tahun 2024, sejumlah 333 kesalahan di bawah Akta Kualiti Alam Sekeliling 1974 (AKAS 1974) telah didakwa di mahkamah dan telah disabitkan kesalahan dengan denda yang dikenakan berjumlah RM 8,441,400.00. **(Rajah 3.33)**

Daripada jumlah keseluruhan kes tersebut, sebanyak 94 (28%) kes mahkamah adalah melibatkan kesalahan di bawah Peraturan-Peraturan Kualiti Alam Sekeliling (Efluen Perindustrian) 2009 dengan jumlah denda sebanyak RM2,569,000.00. Sebanyak 55 (17%) kes mahkamah melibatkan kesalahan di bawah Seksyen 16, Akta Kualiti Alam Sekeliling 1974 dengan jumlah denda sebanyak RM938,900.00 sementara 184 (55%) kes yang selebihnya melibatkan kesalahan-kesalahan lain di bawah AKAS 1974.

Kompaun

Sejumlah 3,742 kompaun telah dikeluarkan sepanjang tahun 2024 kepada premis dan individu untuk pelbagai kesalahan di bawah Akta Kualiti Alam Sekeliling 1974 (AKAS 1974). Pecahan mengikut kesalahan adalah seperti di **Rajah 3.34**.

.LEGAL ACTION

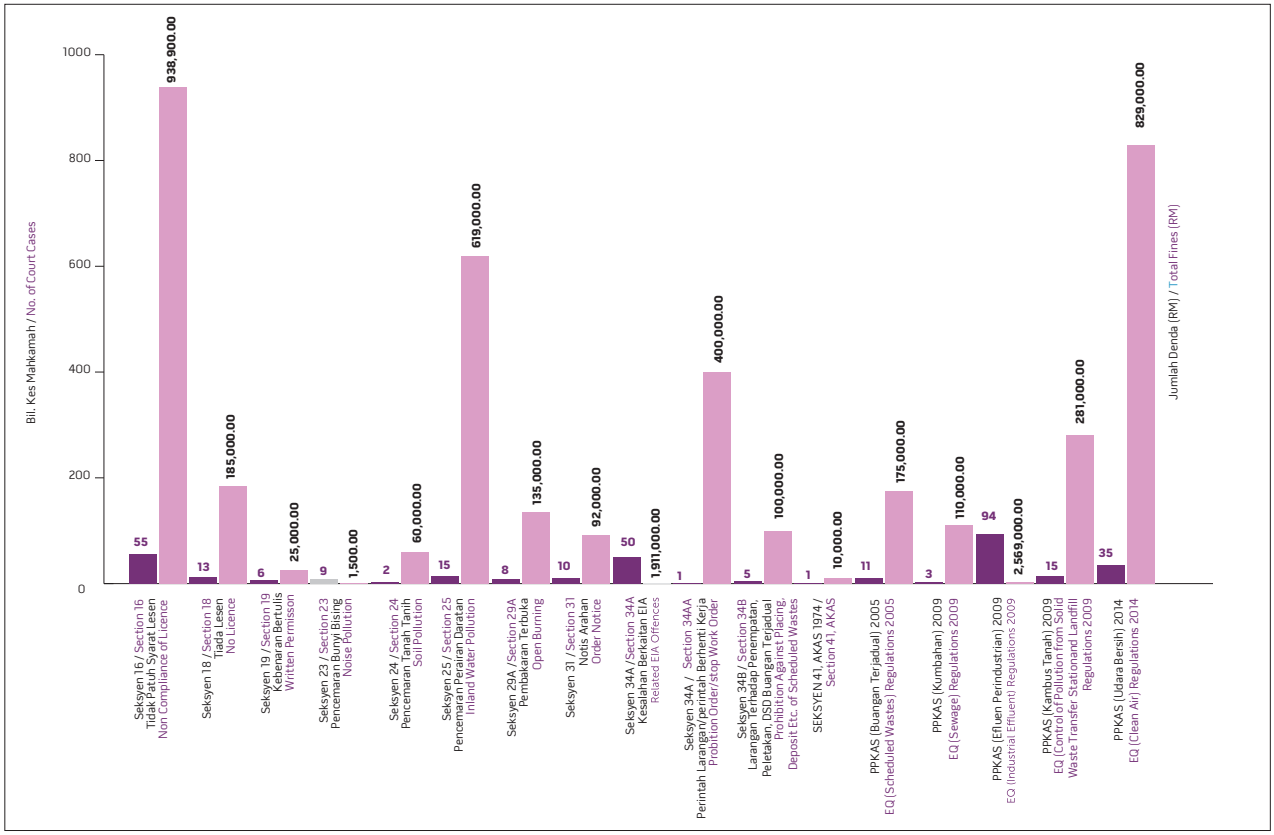
Prosecution

In 2024, a total of 333 offences under the Environmental Quality Act 1974 (EQA 1974) were prosecuted in court and were convicted with a total fines of RM 8,441,400.00. **(Figure 3.33)**

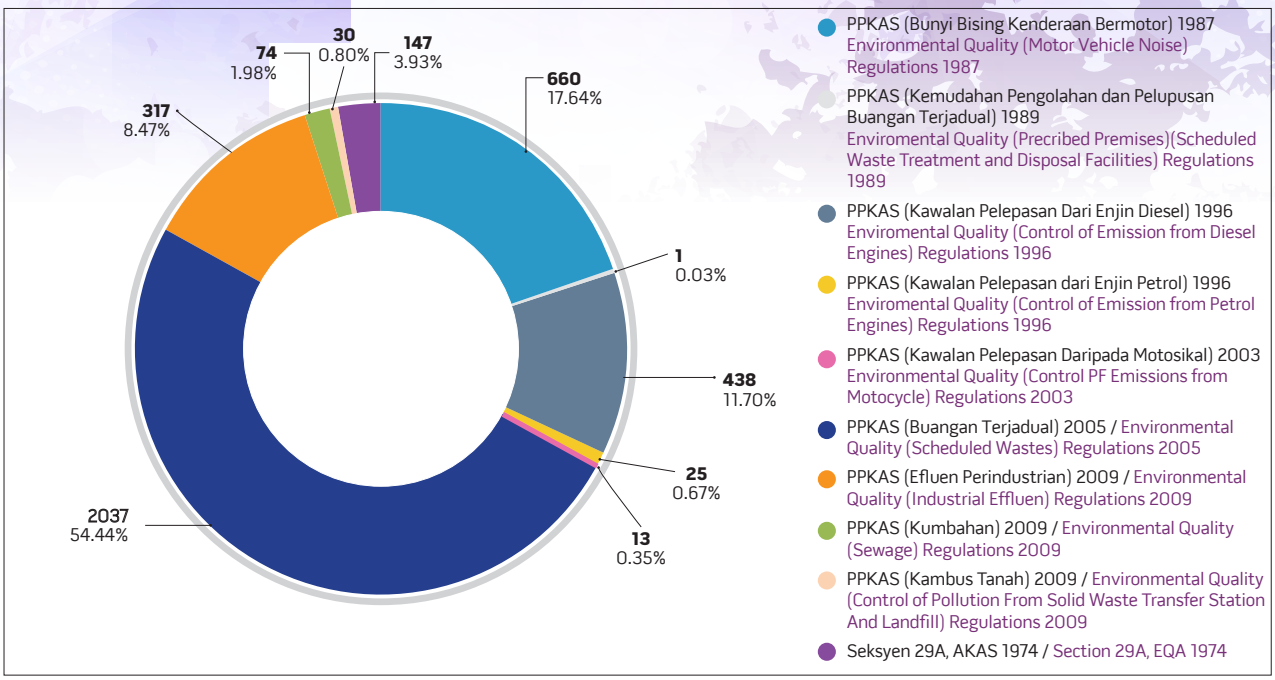
Out of this total, 94 (28%) court cases involved offences under Environmental Quality (Industrial Effluent) Regulations 2009 with a total fine of RM2,569,000.00. There were 55 (17%) court cases involved offences under Section Seksyen 16, Environmental Quality Act 1974 (EQA 1974) with a total fine of RM938,900.00 while the remaining 184 (55%) cases were prosecuted for various other offences under the EQA 1974.

Compounds

A total of 3,742 compounds were issued in 2024 against premises and individual for various offences under the Environmental Quality Act 1974 (EQA 1974). Fraction by offences is shown in **Figure 3.34**.



Rajah 3.33 : Bilangan Kes Mahkamah dan Denda, 2024
Figure 3.33 : Number of Court Cases and Fines, 2024



Rajah 3.34 : Bilangan Kes Kompaun Mengikut Kesalahan, 2024
Figure 3.34 : Number of Compound Cases According to Offence, 2024

PENGURUSAN LOGISTIK DAN KEUPAYAAN PENGUATKUASAAN

Aktiviti penguatkuasaan adalah tugas atau fungsi utama Jabatan Alam Sekitar (JAS) dalam mentadbir Akta 127. Di bawah Rancangan Malaysia Kedua Belas (RMKe-12), untuk tempoh lima (5) tahun bermula dari tahun 2021 hingga tahun 2025, sebanyak RM10,000,000.00 diperuntukkan untuk memperkasa pasukan-pasukan penguatkuasa dengan peralatan-peralatan terkini yang terdapat dipasaran.

Permohonan bajet yang dibuat untuk RMKe-12 adalah berdasarkan kepada pencapaian dan kekangan yang dihadapi pada RMK-11. Bagi memastikan JAS sentiasa dalam keadaan siap siaga untuk menjalankan tugas pada bila-bila masa, maka setiap pegawai penguatkuasa perlu dibekalkan dengan alat pelindung diri yang lengkap dan mencukupi.

Sebanyak RM2,000,000.00 peruntukan diluluskan bagi perolehan untuk Tahun 2024. Jumlah perbelanjaan adalah sebanyak RM1,997,559.30 (99.88%).

Untuk Peruntukan Belanja Mengurus, sebanyak RM1,500,000.00 telah diperuntukkan dan jumlah perbelanjaan adalah sebanyak RM1,499,884.50 (99.99%) bagi penyediaan pakaian seragam dan kelengkapan pegawai JAS.

LOGISTICS MANAGEMENT AND ENFORCEMENT CAPABILITIES

Enforcement activities are the main duties or functions of the Department of Environment (DOE) in implementing the provisions under Act 127. Under the Twelfth Malaysia Plan (12MP), for a period of five (5) years starting from 2021 to 2025, a total of RM10,000,000.00 has been allocated to empower the enforcement teams with the latest equipment available in the market.

The budget applications made for the 12MP are based on the achievements and constraints faced in the 11MP. To ensure that DOE is always in a state of readiness to carry out duties at any time, each enforcement officer must be provided with complete and adequate personal protective equipment.

An amount of RM2,000,000.00 was allocated and approved for procurement for the Year 2024. The total expenditure is RM1,997,559.30 (99.88%).The list of equipment that has been procured is shown in the table below.

For the Managing Expenses Allocation, RM1,500,000.00 has been allocated and the total expenditure is RM1,499,884.50 (99.99%) for the provision of uniforms and equipment for DOE officers.

Senarai peralatan yang telah diperolehi adalah seperti di **Jadual 3.19** dan **3.20**.

The list of equipment that has been procured is shown in **Table 3.19** and **3.20**.

Jadual 3.19: Senarai Peralatan yang telah Diperolehi di bawah Peruntukan RMKe-12
Table 3.19: List of Equipment that has been Procured under the 12MP Budget

BIL. NO.	PEROLEHAN / PROCUREMENT	
1.	Kenderaan Pacuan Empat Roda -16 unit Four-Wheel Drive Vehicle - 16 units	
2.	Gas Analyzer bagi kenderaan petrol – 14 unit Gas Analyzer for Petrol Vehicles – 14 units	
3.	Set Submersible Pump untuk Pengawasan Air Tanah – 3 set Submersible Pump Set for Groundwater Monitoring – 3 sets	
4.	Peralatan Pengawasan Air Tanah (Portable Power Generator) – 1 set Supply Groundwater Monitoring Equipment (Portable Power Generator) – 1 set	
5.	Kasut Keselamatan untuk Pegawai Bahagian Penguatkuasa Supply Safety Boots for Enforcement Division Officer	

Jadual 3.20 Senarai Peralatan yang telah Diperolehi di bawah Peruntukan Belanja Mengurus.
Table 3.20 List of Equipment that has been Procured under the Managing Expenses Allocation

BIL. NO.	PEROLEHAN / PROCUREMENT	
1.	Jahit Pakaian Seragam JAS Sewing Services of DOE Uniforms	
2.	Kain Pakaian Seragam JAS Uniform Clothing Fabric for DOE	
3.	Kelengkapan dan Aksesori Pakaian Seragam JAS Uniform Accessories for DOE	
4.	Sulaman Tanda Nama Pegawai untuk Vest Operasi Embroidery of Officer Name Tags for Operation Vest	
5.	Sel Reben Perkhidmatan Pegawai JAS Ribbon Bar for DOE Officers	
6.	Set Aksesori Metal dan Sulaman untuk Pakaian Seragam JAS Metal Accessories and Embroidery Set for DOE Uniforms	





BAB
CHAPTER
04

MENGARUSPERDANA AMALAN INDUSTRI HIJAU
MAINSTREAMING GREEN INDUSTRY PRACTICES

MENGARUSPERDANA AMALAN INDUSTRI HIJAU
MAINSTREAMING GREEN INDUSTRY PRACTICES

PEMANTAPAN AMALAN INDUSTRI HIJAU DI KALANGAN INDUSTRI KECIL DAN SEDERHANA (IKS) MELALUI KONSEP PENCEGAHAN PENCEMARAN
MAINSTREAMING GREEN INDUSTRY PRACTICES AMONG SMALL AND MEDIUM ENTERPRISES (SME) TOWARDS GREEN GROWTH THROUGH THE CONCEPT OF POLLUTION PREVENTION

PEMANTAPAN AMALAN INDUSTRI HIJAU DALAM KALANGAN INDUSTRI MELALUI KONSEP PENCEGAHAN PENCEMARAN

Amalan Industri Hijau (AIH) memainkan peranan penting dalam memperkasakan sektor industri menuju ke arah kelestarian alam sekitar dan pengurangan impak negatif yang ditimbulkan oleh aktiviti perindustrian. Salah satu konsep utama dalam AIH adalah Pengeluaran Bersih atau Cleaner Production (CP), yang memberi tumpuan kepada pengurangan pembaziran sumber, emisi karbon, serta pencemaran alam sekitar.

Pengeluaran Bersih (CP) adalah suatu pendekatan yang berasaskan inovasi untuk memperbaiki kecekapan proses pengeluaran dan produk, mengurangkan penggunaan bahan mentah dan tenaga, serta meminimumkan pembentukan sisa dan pencemaran. CP mengutamakan pencegahan pencemaran di peringkat sumber, bukan hanya menumpukan kepada masalah selepas pencemaran berlaku. Melalui pendekatan ini, industri dapat mengurangkan kos, meningkatkan prestasi ekonomi dan mencapai kelestarian alam sekitar secara berterusan.

Konsep CP merangkumi pelbagai aktiviti yang termasuk:

1. Penggunaan sumber secara cekap – Memastikan bahawa bahan mentah, tenaga, dan air digunakan dengan lebih efisien untuk mengurangkan pembaziran.
2. Reka bentuk dan inovasi proses – Mengubah reka bentuk proses pengeluaran untuk meminimumkan pembentukan sisa dan penggunaan bahan berbahaya.
3. Penggunaan bahan yang lebih mesra alam – Menggantikan bahan kimia berbahaya dengan alternatif yang lebih mesra alam dan selamat untuk kesihatan manusia dan ekosistem.

STRENGTHENING GREEN INDUSTRY PRACTICES IN THE INDUSTRY THROUGH THE CONCEPT OF POLLUTION PREVENTION

Green Industry Practices (GIP) play an important role in empowering the industrial sector towards environmental sustainability and reducing the negative impacts caused by industrial activities. One of the key concepts in GIP is Cleaner Production (CP), which focuses on reducing resource waste, carbon emissions, and environmental pollution.

Cleaner Production (CP) is an approach based on innovation to improve production and product efficiency, reduce the use of raw materials and energy, and minimize waste generation and pollution. CP prioritizes pollution prevention at the source, rather than simply addressing the problem after pollution has occurred. Through this approach, industries can reduce costs, enhance economic performance, and achieve environmental sustainability continuously.

The CP concept includes various activities, such as:

1. Efficient resource use – Ensuring that raw materials, energy, and water are used more efficiently to reduce waste.
2. Process design and innovation – Changing the design of production processes to minimize waste generation and the use of hazardous materials.
3. Use of more environmentally friendly materials – Replacing harmful chemicals with safer and more eco-friendly alternatives for human health and ecosystems.

4. Recycling dan pemulihan bahan – Menggalakkan penggunaan semula bahan buangan dan sisa industri untuk mengurangkan kesan negatif terhadap alam sekitar.
5. Inovasi teknologi – Menggunakan teknologi moden untuk meningkatkan kecekapan dan mengurangkan impak alam sekitar sepanjang kitaran hidup produk.

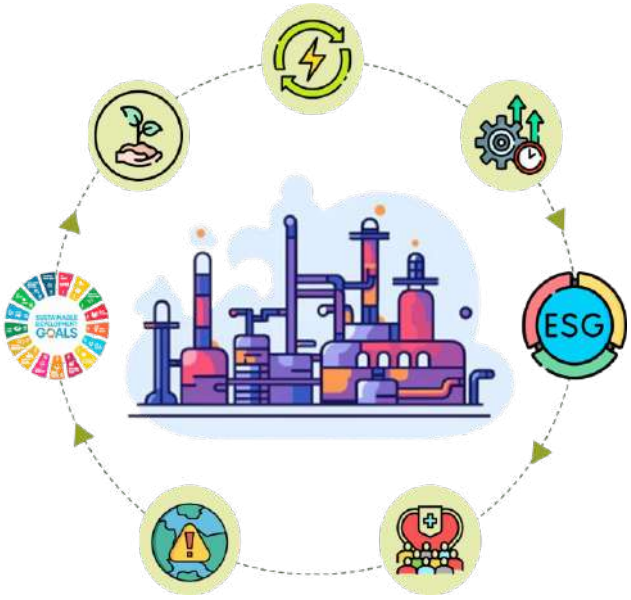
JAS terus memperkasakan inisiatif untuk mempromosikan amalan ini dalam kalangan industri, dengan menyediakan rangka kerja sokongan dan insentif yang dapat membantu peralihan kepada amalan CP. Langkah ini bukan hanya untuk mengurangkan pencemaran, tetapi juga untuk meningkatkan daya saing industri melalui inovasi dan peningkatan produktiviti.

Secara keseluruhan, melalui amalan CP, industri dapat bergerak ke arah pengeluaran yang lebih lestari, mengurangkan pembaziran sumber semulajadi dan mengurangkan jejak karbon. Ini akan memberi manfaat jangka panjang kepada ekonomi, masyarakat, dan alam sekitar. Pemantapan amalan industri hijau ini akan memastikan bahawa sektor perindustrian dapat terus berkembang dengan mengurangkan kesan negatif terhadap alam sekitar. Hubung kait penerapan Amalan Industri Hijau dalam industri dapat diringkaskan dalam **Rajah 4.1**

4. Recycling and material recovery – Encouraging the reuse of industrial waste and by-products to reduce environmental impact.
5. Technological innovation – Using modern technologies to improve efficiency and reduce environmental impacts throughout the product life cycle.

DOE continues to strengthen initiatives to promote these practices within the industry by providing a framework of support and incentives to assist the transition to Cleaner Production practices. This effort is not only aimed at reducing pollution but also at enhancing industrial competitiveness through innovation and productivity improvements.

Overall, through CP practices, industries can move towards more sustainable production, reduce the waste of natural resources, and minimize their carbon footprint. This will bring long-term benefits to the economy, society, and the environment. Strengthening these green industry practices will ensure that the industrial sector can continue to grow while reducing its negative impact on the environment. The relationship between the adoption of Green Industry Practices in the industry can be summarized in **Figure 4.1**



Rajah 4.1: Hubung Kait Amalan Industri Hijau melalui Konsep Pengeluaran Bersih dengan ESG dan Sasaran SDG
Figure 4.1: Linkage of Green Industry Practices through the Concept of Net Zero Emissions with ESG and SDG Targets

Konsep CP juga berkait rapat dengan usaha global dan nasional untuk menangani perubahan iklim dan mengurangkan pelepasan gas rumah hijau. Jabatan menyokong hasrat Kerajaan sebagai sebuah negara yang komited untuk mengurangkan pelepasan gas rumah hijau melalui pelbagai strategi yang selaras dengan perjanjian seperti Perjanjian Paris.

JAS meneruskan komitmen bagi memastikan Amalan Hijau serta merealisasikan tekad Kerajaan untuk mempertahankan khazanah semula jadi negara ke arah memastikan masa depan yang lebih bermakna untuk semua. Justeru itu, JAS, melalui Sekyen Industri Hijau (SIH) meneruskan pelbagai program dan projek untuk menyokong hasrat kerajaan mencapai kelestarian dan kestabilan alam sekitar.

Pada tahun 2024, JAS menyokong usaha negara mencapai Matlamat Pembangunan Lestari (SDG) dan juga usaha penyepaduan Alam Sekitar, Sosial dan Tadbir Urus (ESG). Bagi menyokong hasrat tersebut, SIH telah merangka beberapa program yang relevan dengan hasrat kerajaan. Masih mengekalkan tema Pemantapan Amalan Industri Hijau Dalam Kalangan Industri Melalui Konsep Pencegahan Pencemaran, SIH telah menetapkan matlamat RMKe-12 iaitu untuk memperkukuhkan Amalan Industri Hijau dalam kalangan Perusahaan Kecil dan Sederhana (PKS) ke arah Pengeluaran Lestari dan untuk mengurangkan pelepasan gas rumah hijau (GHG).

Di antara objektif program yang telah mendapat mandat dan kelulusan Unit Perancang Ekonomi (EPU) untuk dilaksanakan pada tahun 2024 adalah:

1. Memperkukuhkan Institusi Industri Hijau dalam JAS;
2. Meningkatkan pematuhan industri terhadap perundangan alam sekitar; dan
3. Menyokong komitmen kerajaan terhadap ESG.

The CP concept is also closely related to global and national efforts to address climate change and reduce greenhouse gas emissions. The Department supports the Government's ambition as a country committed to reducing greenhouse gas emissions through various strategies aligned with agreements such as the Paris Agreement.

DOE continues its commitment to ensure the implementation of Green Practices and to realize the Government's determination to preserve the nation's natural heritage, towards ensuring a more meaningful future for all. Therefore, through the Green Industry Section (SIH), DOE continues various programmes and projects to support the government's aspirations to achieve environmental sustainability and stability.

In 2024, DOE supports the nation's efforts to achieve the Sustainable Development Goals (SDGs) as well as the integration of Environment, Social, and Governance (ESG) efforts. To support this, SIH has formulated several programmes relevant to the Government's aspirations. Maintaining the theme of Strengthening Green Industry Practices Through the Concept of Pollution Prevention, SIH has set the 12th Malaysia Plan (12MP) goal, which is to reinforce Green Industry Practices among Small and Medium Enterprises (SMEs) towards Sustainable Production and to reduce greenhouse gas (GHG) emissions.

Among the objectives of the programmes, which have received the mandate and approval from the Economic Planning Unit (EPU) for implementation in 2024, are:

1. Strengthening the Green Industry institutions within DOE;
2. Enhancing industry compliance with environmental legislation; and
3. Supporting the Government's commitment to ESG.

Berikut adalah program dan aktiviti yang telah dilaksanakan pada tahun 2024:

PROGRAM KAJIAN PEMBENTUKAN INDEKS INDUSTRI HIJAU KEBANGSAAN DAN KAJIAN CADANGAN INSENTIF KEPADA PREMIS YANG MENGAPLIKASIKAN AMALAN INDUSTRI HIJAU DI MALAYSIA

Di bawah peruntukan Rolling Plan ke 4 (RP4) Rancangan Malaysia Ke-12 (RMKe-12), JAS telah menggariskan beberapa skop kajian yang selari dengan Pelan Strategik JAS 2020-2030. Antara projek kajian yang diberi perhatian ialah Kajian Pembentukan Indeks Industri Hijau Kebangsaan dan juga Kajian Cadangan Insentif kepada Premis Industri Sebagai Galakan dalam Mengaplikasikan Amalan Industri Hijau Melalui Konsep Pengeluaran Bersih di Malaysia. Kedua-dua kajian ini adalah usaha Jabatan dalam meningkatkan Amalan Industri Hijau di kalangan industri.

Kajian ini telah dilaksanakan melalui lantikan kajian perunding melalui perolehan Lantikan Terus Beserta Kos Siling (LTBKS). UPUM Sdn. Bhd. merupakan perunding yang telah dilantik bagi melaksanakan Kajian Pembentukan Indeks Industri Hijau Kebangsaan. Manakala UKM Pakarunding Sdn. Bhd. merupakan perunding yang telah dilantik bagi Kajian Cadangan Insentif kepada Premis Industri Sebagai Galakan dalam mengaplikasikan Amalan Industri Hijau melalui Konsep Pengeluaran Bersih di Malaysia. Tempoh bagi kedua-dua kajian ini adalah 18 bulan dan dijangka akan siap pada tahun 2025.

Output kedua-dua kajian ini adalah disasarkan untuk menyokong serta memperkasakan Amalan Industri Hijau di kalangan industri dan yang paling utama adalah membantu kepada pecapaian pematuhan AKAS 1974. Selain itu, ia akan memberi nilai tambah kepada pihak industri yang mengaplikasikan Amalan Industri Hijau.

MEMPERKUKUHKAN MEKANISMA INSTITUSI INDUSTRI HIJAU

Program Pemeriksaan Penguatkuasaan Prosedur Tetap Operasi Pengeluaran Bersih (PTOCP)

Bagi penambahbaikan berterusan, SIH turut turun padang bagi program PTOCP yang diadakan oleh JAS Negeri. Pelaksanaan program ini adalah salah satu inisiatif yang diambil untuk memantapkan JAS Negeri dalam melaksanakan program PTOCP. Hasil dapatan audit pemeriksaan ini akan diteliti untuk penambaikan

These are the projects and activities undertaken in 2024:

PROGRAMME FOR THE KAJIAN PEMBENTUKAN INDEKS INDUSTRI HIJAU KEBANGSAAN DAN KAJIAN CADANGAN INSENTIF KEPADA PREMIS YANG MENGAPLIKASIKAN AMALAN INDUSTRI HIJAU DI MALAYSIA

Under the Rolling Plan 4 (RP4) of the 12th Malaysia Plan (12MP), the DOE has outlined several research scopes that align with the DOE Strategic Plan 2020-2030. Among the research projects are the Kajian Pembentukan Indeks Industri Hijau Kebangsaan dan juga Kajian Cadangan Insentif Kepada Premis Industri Sebagai Galakan dalam mengaplikasikan Amalan Industri Hijau Melalui Konsep Pengeluaran Bersih di Malaysia. Both studies are DOE's efforts to enhance Green Industry Practices among industries.

These studies have been carried out through the appointment of research consultants via direct procurement with a cost ceiling (Lantikan Terus Beserta Kos Siling, LTBKS). UPUM Sdn. Bhd. has been appointed as the consultant for the Kajian Pembentukan Indeks Industri Hijau Kebangsaan, while UKM Pakarunding Sdn. Bhd. has been appointed for the Kajian Cadangan Insentif kepada Premis Industri Sebagai Galakan dalam Mengaplikasikan Amalan Industri Hijau Melalui Konsep Pengeluaran Bersih di Malaysia. The duration for both studies is 18 months, with an expected completion date in 2025.

The outputs of both studies are aimed to support and strengthen Green Industry Practices among industries. Most importantly, they will assist in achieving compliance with the Environmental Quality Act 1974 (AKAS 1974). Additionally, these studies will provide added value to industries that implement Green Industry Practices.

STRENGTHENING GREEN INDUSTRY INSTITUTIONAL MECHANISMS

Cleaner Production Standard Operating Procedure Enforcement Inspection Programme (PTOCP)

For continuous improvement, the Green Industry Section (SIH) has actively participated in the PTOCP programme organized by DOE State. The implementation of this programme is one of the initiatives taken to strengthen DOE State in executing the PTOCP. The findings from this audit inspection will be reviewed for continuous

berterusan dari semasa ke semasa selaras dengan kehendak ESG.

Berdasarkan penemuan yang telah dikenal pasti semasa program PTCOP, beberapa langkah penambahbaikan telah dicadangkan untuk memastikan Amalan Industri Hijau lebih diterima dan dilaksanakan secara meluas oleh pihak industri. Berikut adalah beberapa cadangan dan syor untuk penambahbaikan yang boleh dipertimbangkan:

1. Peningkatan Kesedaran dan Pendidikan

Pihak industri perlu diberi lebih banyak maklumat dan latihan mengenai konsep CP dan manfaat penerapan Amalan Industri Hijau. Salah satu langkah yang boleh diambil adalah dengan mengadakan seminar, bengkel dan sesi penerangan yang lebih kerap untuk meningkatkan pemahaman industri tentang kepentingan amalan hijau ini.

2. Penyebaran Maklumat tentang Insentif dan Inisiatif Kerajaan

Banyak industri yang mungkin belum mengetahui inisiatif dan insentif yang ditawarkan oleh pihak kerajaan berkaitan kecekapan teknologi hijau. Oleh itu, satu platform atau kempen khas yang memfokuskan kepada penerangan mengenai faedah yang ditawarkan oleh kerajaan untuk menggalakkan amalan hijau boleh dijalankan.

3. Memperluas Inisiatif Hijau dalam Industri

Walaupun terdapat industri yang sudah mula mengamalkan konsep CP, seperti pemasangan inverter untuk penjimatan tenaga, masih terdapat ruang untuk memperluaskan lagi amalan-amalan hijau dalam kalangan industri. Sebagai contoh, lebih banyak industri boleh diberi galakan untuk melaksanakan amalan pengurusan sumber yang cekap dan pengurangan sisa secara proaktif.

4. Meningkatkan Kemahiran dan Pengetahuan Pegawai JAS:

Bagi memantapkan program ini, usaha berterusan bersama pihak EiMAS perlu dilakukan untuk menyediakan kursus dan kompetensi kepada pegawai JAS bagi memastikan semua pegawai didedahkan dengan kaedah terkini Amalan Industri Hijau.

Senarai premis pemeriksaan PTOCP tersebut adalah seperti di **Jadual 4.1**

improvement from time to time, in line with the requirements of Environmental, Social, and Governance (ESG).

Based on the findings identified during the PTCOP programme, several improvement measures have been proposed to ensure that Green Industry practices are more widely accepted and implemented by industries. These are some suggestions and recommendations for improvement that can be considered:

1. Raising Awareness and Education

The industry needs to be provided with more information and training on the concept of CP and the benefits of adopting Green Industry Practices. One of the steps that can be taken is to organize more frequent seminars, workshops, and informational sessions to enhance the industry's understanding of the importance of these green practices.

2. Disseminating Information about Government Incentives and Initiatives

Many industries may not be aware of the initiatives and incentives offered by the government related to green technology efficiency. Therefore, a dedicated platform or campaign focusing on explaining the benefits provided by the government to encourage green practices could be launched.

3. Expanding Green Initiatives in the Industry

While some industries have already started adopting the CP concept, such as installing inverters for energy savings, there is still room to further expand green practices among industries. For example, more industries could be encouraged to implement resource-efficient management practices and proactive waste reduction.

4. Enhancing the Skills and Knowledge of DOE Officers:

To strengthen this programme, continuous efforts should be made to provide training courses to DOE officers in collaboration with EiMAS to ensure they are up-to-date with the latest methods for practicing Green Industry Practices.

The list of premises for the PTOCP inspection is provided in **Table 4.1**

Jadual 4.1 JAS: Senarai Premis Pemeriksaan PTOCP
Table 4.1 DOE: List of Premises Involve in Inspection PTOCP

BIL. NO.	TARIKH / DATE	NEGERI / STATE	AUDIT / AUDIT	NAMA KILANG / PEJABAT JAS NAME OF PREMISE / DOE OFFICE
1.	10 Jun 2024	Pulau Pinang	PTOCP	Eng Huat Oil & Rice Mill
2.	11 Jun 2024	Pulau Pinang	Tenaga	Cawangan Bayan Lepas
3.	13 Jun 2024	Perak	Tenaga	JAS Ibu Pejabat Negeri Perak
4.	15 Julai 2024	Perlis	PTOCP	Ilrichi (M)
5.	16 Julai 2024	Kedah	PTOCP	Sigma Harmony
6.	18 Julai 2024	Kedah	Tenaga	JAS Ibu Pejabat Negeri Kedah
7.	22 Julai 2024	Kuala Lumpur	PTOCP	MIMOS (M)
8.	23 Julai 2024	Kuala Lumpur	PTOCP	Ramly Burger Sdn. Bhd.
9.	24 Julai 2024	Kuala Lumpur	Tenaga	JAS Ibu Pejabat Kuala Lumpur
10.	10 September 2024	Sarawak	Tenaga	JAS Ibu Pejabat Negeri Sarawak
11.	20 September 2024	Negeri Sembilan	Tenaga	JAS Ibu Pejabat Negeri Sembilan
12.	5 November 2024	Labuan	Tenaga	JAS Ibu Pejabat Labuan

Selain itu, Seksyen ini juga telah diarahkan untuk menjalankan Audit Tenaga di pejabat JAS Negeri dan juga pejabat Cawangan JAS di seluruh Malaysia. Fokus audit tenaga ini adalah terhadap penggunaaan utiliti (elektrik dan air) di pejabat-pejabat JAS. Pada tahun 2025, sebanyak tujuh (7) pejabat JAS Negeri dan Cawangan telah diaudit. Hasil daripada penemuan audit tersebut mendapati bahawa, berdasarkan Kategori Piawaian Penggunaan elektrik, 42.1% Pejabat JAS dikategorikan sebagai Rendah, 42.1% dikategorikan sebagai Sederhana dan 15.8% dikategorikan sebagai Tinggi.

Rumusan daripada dapatan audit utiliti yang telah dilaksanakan adalah seperti berikut:

i. Pendawaian elektrik jenis berpusat dikenal pasti antara sebab amalan untuk menutup suis lampu di kawasan yang tidak berpenghuni atau yang tidak digunakan tidak dapat dilaksanakan kerana ia akan turut mematikan lampu di kawasan ruangan bekerja yang berpenghuni;

ii. Bagi penggunaan air, ia masih di dalam keadaan terkawal dan tidak terdapat sebarang isu-isu yang kritikal memandangkan kesemua pejabat JAS dikategorikan dalam kategori Rendah (100%) berdasarkan Piawaian yang dikeluarkan oleh Plan Malaysia.

In addition, this Section has been instructed to conduct Energy Audits at the DOE State offices and DOE Branch offices throughout Malaysia. The energy audit focuses on the utility usage (electricity and water) at the DOE offices. In 2025, a total of seven (7) DOE State offices and Branch offices were audited. The results from the audit revealed that, based on the Electricity Usage Standard Categories, 42.1% of the DOE offices were categorized as Low, 42.1% as Medium, and 15.8% as High.

The summary of the findings from the utility audit are as follows:

i. Electrical wiring of centralized type was identified as one of the reasons why the practice of switching off lights in unoccupied or unused areas could not be implemented, as it would also turn off the lights in the occupied work areas.

ii. For water usage, it remains under control, with no critical issues found, as all DOE offices were categorized as Low (100%) according to the standards set by Plan Malaysia.

Syor penambahbaikan bagi mengoptimumkan penggunaan tenaga elektrik dan air di Pejabat JAS Negeri dan pejabat JAS Cawangan adalah dengan penambahbaikan berikut:

i. Memastikan keseluruhan sistem pendawaian elektrik bangunan pejabat berada di dalam keadaan baik dan selamat bagi mengelakkan sebarang kebocoran elektrik. Kerja-kerja penyelenggaraan perlu dimaklumkan kepada Pejabat JAS Negeri ataupun dimaklumkan kepada pihak Pengurusan Bangunan bagi bangunan yang disewa;
ii. Menggantikan kesemua mentol-mentol lampu yang digunakan kepada jenis LED bagi memastikan penggunaan tenaga dapat diminimumkan;
iii. Memastikan suis lampu dimatikan bagi kawasan-kawasan yang tidak berpenghuni bagi memastikan penjimatan penggunaan elektrik;
iv. Memastikan kesemua lampu dimatikan sewaktu rehat (1.00 tengahari hingga 2.00 petang). Usaha ini akan dapat mengurangkan penggunaan elektrik secara signifikan jika ia kekal diamalkan;
v. Penyelenggaraan berkala bagi alat penghawa dingin seperti mana spesifikasi yang telah ditetapkan oleh pengeluar; dan
vi. Mengadakan rundingan harga bagi kos sewaan bangunan Pejabat JAS dengan pihak penyewa bagi kontrak atau perjanjian yang akan tamat tempoh agar kos sewaan adalah berbaloi kepada JAS jika kos sewaan berkenaan adalah termasuk dengan bayaran utiliti penggunaan elektrik dan air.

Hebahan dan Perkongsian

Beberapa siri libat urus telah dilaksanakan oleh SIH dalam memperkukuhkan mekanisma institusi industri hijau khususnya di JAS. Sesi libat urus bagi mendapatkan input serta cadangan bagi Kajian Pembentukan Indeks Industri Hijau Kebangsaan dan Kajian Cadangan Insentif Kepada Premis Industri Sebagai Galakan dalam Mengaplikasikan Amalan Industri Hijau melalui Konsep Pengeluaran Bersih di Malaysia telah diadakan pada 14 Oktober sehingga 17 Oktober 2024. Sesi libat urus yang diadakan di Hotel The Pearl, Kuala Lumpur ini telah melibatkan beberapa agensi, wakil industri dan juga para akademik. Antara agensi yang terlibat adalah seperti wakil dari NRES, MIDA, MGTC, HASIL, MATRADE, FMM, BURSA Malaysia, UITM, UnisZA, Sunway University, UKM dan Bureau Varitas.

Selain daripada itu, SIH juga telah memenuhi jemputan daripada JAS Negeri Melaka untuk menyampaikan perkongsian bersempena World Environmental Day

The recommendations for improving the optimization of electricity and water usage in the DOE State offices and DOE Branch offices are as follows:

i. Ensure the entire electrical wiring system in the office building is in good and safe condition to prevent any electrical leaks. Maintenance work should be communicated to the DOE State office or the building management for leased buildings.
ii. Replace all light bulbs with LED types to ensure that energy usage is minimized;
iii. Ensure lights are switched off in areas that are not occupied to promote electricity savings;
iv. Ensure all lights are turned off during break hours (1:00 PM to 2:00 PM). This effort can significantly reduce electricity usage if consistently practiced.
v. Periodic maintenance of air conditioning units should be carried out according to the specifications set by the manufacturer.
vi. Negotiate rental rates with building landlords for the lease agreements of DOE offices that are about to expire, to ensure that the rental cost is justified, especially if the lease includes utility costs for electricity and water usage.

Outreach and Sharing

Several engagement sessions have been carried out by SIH to strengthen the mechanism of green industry institutions, particularly within DOE. Engagement sessions to gather input and suggestions for the and the Kajian Cadangan Insentif Kepada Premis Industri Sebagai Galakan dalam Mengaplikasikan Amalan Industri Hijau Melalui Konsep Pengeluaran Bersih di Malaysia were held from 14 – 17 October 2024. These sessions took place at The Pearl Hotel, Kuala Lumpur, and involved several agencies, industry representatives, and academics. Some of the agencies involved include representatives from NRES, MIDA, MGTC, HASIL, MATRADE, FMM, Bursa Malaysia, UITM, UnisZA, Sunway University, UKM, and Bureau Varitas.

In addition, SIH was invited by DOE state of Melaka to share insights during the World Environment Day event held at Infineon Sdn. Bhd. This seminar

yang telah diadakan di Infineon Sdn. Bhd. Seminar ini melibatkan lebih kurang 200 peserta yang terdiri daripada wakil industri-industri yang berada di Melaka. Dalam usaha menyebarluaskan dan memantapkan pengetahuan pegawai-pegawai JAS Negeri, SIH juga berpeluang mengadakan sesi taklimat berkaitan CP dalam era ESG serta berkaitan Sistem Pemantauan dan Pengurusan Industri Hijau (SPPIH) di JAS Negeri. Antara JAS Negeri yang telah di beri taklimat tersebut adalah JAS Negeri Sarawak dan JAS Labuan.

involved approximately 200 participants, including representatives from industries based in Melaka. As part of efforts to disseminate and strengthen knowledge among DOE State officers, SIH also had the opportunity to conduct briefings on Cleaner Production in the era of ESG and the Green Industry Monitoring and Management System (SPPIH) at DOE State. Among the DOE State Offices that received the briefing were DOE Sarawak State and DOE Labuan.

Seiring dengan perkembangan semasa mengenai kepentingan ESG, SIH telah mengambil langkah proaktif dengan menganjurkan sesi taklimat yang bertujuan untuk memberi pemahaman lebih mendalam mengenai peranan JAS dalam mendepani isu-isu yang berkaitan dengan ESG dan Matlamat Pembangunan Mampan (SDG). Dalam sesi taklimat tersebut, pelbagai topik berkaitan peraturan, dasar, serta inisiatif yang digerakkan oleh JAS untuk menyokong prinsip ESG dan SDG telah dibincangkan, dengan tumpuan khusus kepada pemeliharaan alam sekitar, kemampanan sosial, dan tadbir urus yang baik.

In line with the current developments regarding the importance of ESG, SIH has taken proactive steps by organizing briefing sessions aimed at providing a deeper understanding of the role of the DOE in addressing issues related to ESG and the Sustainable Development Goals (SDGs). During these briefings, various topics related to regulations, policies, and initiatives driven by DOE to support ESG and SDG principles were discussed, with a particular focus on environmental preservation, social sustainability, and good governance.

Selain itu, beberapa siri taklimat tambahan juga telah diadakan dengan penyertaan pihak industri. Fokus utama taklimat ini adalah teknologi terkini dalam mengatasi masalah alam sekitar, khususnya dalam rawatan effluen. Teknologi-teknologi ini termasuk kaedah moden dan inovatif dalam mengurangkan pencemaran air dan memulihkan kualiti air, yang sangat penting dalam menyokong inisiatif ESG dan SDG yang berkaitan dengan pengurusan sumber air dan pemeliharaan ekosistem. Ini mencerminkan komitmen JAS untuk memastikan perkembangan industri yang mampan, yang mengambil kira bukan sahaja keuntungan ekonomi tetapi juga kepentingan alam sekitar dan kesejahteraan sosial.

Additionally, several other briefing sessions have been held in collaboration with industry stakeholders. The focus of these briefings was on the latest technologies used to address environmental issues, particularly in effluent treatment. These technologies include modern and innovative methods for reducing water pollution and restoring water quality, which are crucial in supporting ESG and SDG initiatives related to water resource management and ecosystem preservation. This reflects DOE's commitment to ensuring sustainable industrial development that considers not only economic profits but also environmental and social well-being.

Bagi terus memantapkan dan memperkasakan industri dalam mengamalkan konsep CP, pada tahun 2024, SIH juga telah menerbitkan satu buku Garis Panduan Pelaksanaan Amalan Industri Hijau bagi sektor Penyudahan Logam dan Sadur Elektrik (Electroplating). Garis Panduan ini adalah sebagai rujukan bagi industri dalam sektor yang sama untuk melaksanakan program CP di premis masing-masing.

To further strengthen and empower industries in implementing the concept of Cleaner Production, in 2024, SIH also published a Guideline for the Implementation of Green Industry Practices for the Metal Finishing and Electroplating Sector. This guideline serves as a reference for industries in the sector to implement Cleaner Production programmes at their respective premises.



▲ Sesi Libat Urus Kajian Pembentukan Indeks Industri Hijau Kebangsaan dan Kajian Cadangan Insentif kepada Premis Industri Sebagai Galakan dalam Mengaplikasikan Amalan Industri Hijau melalui Konsep Pengeluaran Bersih di Malaysia
Engagement Session on the Study for the Formation of the National Green Industry Index and the Study on Purposed Incentives for Industrial Premises as an Encouragement to Apply Green Industry Practices through the Concept of Clean Production in Malaysia



▲ Program PTOCP bersama JAS Negeri
PTOCP Programme with DOE State










▲ Program Hebahan dan Perkongsian
The Outreach and Sharing Session Programme


35TH MALAY
JOINT COMMITTEE



BAB
CHAPTER
05

HAL EHWAL ALAM SEKITAR ANTARABANGSA
INTERNATIONAL ENVIRONMENTAL AFFAIRS

HAL EHWAL ALAM SEKITAR ANTARABANGSA
INTERNATIONAL ENVIRONMENTAL AFFAIRS

MESYUARAT KE-4 INDONESIA-MALAYSIA-THAILAND GROWTH TRIANGLE WORKING GROUP ON ENVIRONMENT (4TH IMT-GT WGE)

Jabatan Alam Sekitar (JAS) Putrajaya telah menerima lawatan kerja daripada delegasi IMT-GT WGE yang terdiri daripada delegasi Indonesia dan Thailand. Kementerian Sumber Asli dan Kelestarian Alam (NRES) sebagai tuan rumah telah menganjurkan Mesyuarat ke-4 IMT-GT WGE pada 9 - 10 Julai 2024 di Kuala Lumpur. Lawatan kerja tersebut telah dipengerusikan oleh Puan Hajah Azuri Azizah binti Haji Saedon, Pengarah, Bahagian Komunikasi Strategik, JAS.

IMT-GT WGE merupakan mesyuarat tahunan yang membincangkan hala tuju sektor alam sekitar di rantau Indonesia-Malaysia-Thailand dan terdiri daripada perbincangan berkenaan pelaksanaan projek-projek sektor alam sekitar yang menyumbang kepada kerjasama pelbagai hala di bawah IMT-GT.

Delegasi dari Indonesia diketuai oleh Dr. Ir. Haruki Agustina, Kementerian Lingkungan Hidup dan Kehutanan Republik Indonesia selaku Pengerusi bagi 4th IMT-GT WGE manakala delegasi dari Thailand pula diketuai oleh Puan Wacharee Chuaysri, Kementerian Sumber Asli dan Alam Sekitar, Thailand. Wakil dari Centre for IMT-GT (CIMT) Sub-regional Cooperation Malaysia pula diwakili oleh Puan Raja Saza Nur Aquilla selaku penyelaras projek.

Semasa lawatan kerja tersebut JAS juga telah berkongsi maklumat mengenai pengurusan kualiti udara dan air di Malaysia. Puan Ling Ling Chui, Ketua Penolong Pengarah, Bahagian Air dan Marin telah menyampaikan pembentangan mengenai Program Pemantauan Kualiti Air di Malaysia, diikuti dengan pembentangan oleh Puan Ijan Khusaida binti Mohd Jan, Penolong Pengarah Kanan, Bahagian Udara, mengenai Pengurusan dan Pemantauan Kualiti Udara di Malaysia. En. Halmy bin Sirat, Penolong Pengarah Kanan, Bahagian Udara, kemudian mengetuai lawatan ke Pusat Data Alam Sekitar sebagai sebahagian daripada lawatan kerja.

4TH MEETING INDONESIA-MALAYSIA- THAILAND GROWTH TRIANGLE WORKING GROUP ON ENVIRONMENT (4TH IMT-GT WGE)

The Department of Environment (DOE) Putrajaya has received a working visit from the IMT-GT WGE delegation consisting of delegation from Indonesia and Thailand. The Ministry of Natural Resources and Environmental Sustainability (NRES), as the host, has organised the 4th IMT-GT WGE Meeting on 9 - 10 July 2024 in Kuala Lumpur. The working visit was chaired by Puan Hajah Azuri Azizah binti Haji Saedon, Director, Strategic Communication Division, DOE.

The IMT-GT WGE is an annual meeting to discuss the direction of the environmental sector in the Indonesia-Malaysia-Thailand region. It includes discussions about the implementation of environmental sector projects that contribute to multilateral cooperation under IMT-GT.

The Indonesian delegation was led by Dr. Ir. Haruki Agustina from the Ministry of Environment and Forestry of the Republic of Indonesia, who also serves as the Chairperson of the 4th IMT-GT WGE. Meanwhile, the Thai delegation was led by Madam Wacharee Chuaysri from the Ministry of Natural Resources and Environment, Thailand. The Centre for IMT-GT (CIMT) Sub-regional Cooperation Malaysia was represented by Ms. Raja Saza Nur Aquilla, who serves as the project coordinator.

During the working visit, DOE also shared information about air and water quality management in Malaysia. Ms. Ling Ling Chui, Principal Assistant Director, Water and Marine Division, gave a presentation on Water Quality Monitoring Programme in Malaysia, which was followed by a presentation by Ms. Ijan Khusaida binti Mohd Jan, Senior Assistant Director, Air Division, on Air Quality Management and Monitoring in Malaysia. Mr. Halmy bin Sirat, Senior Assistant Director, Air Division, then led a tour of the Environmental Data Centre as part of the working visit.



▲ Dr. Ir. Haruki Agustina Menerima Cenderamata daripada Puan Hajah Azuri Azizah binti Haji Saedon / Dr. Ir. Haruki Agustina Received a Souvenir from Puan Hajah Azuri Azizah binti Haji Saedon



▲ Antara Barisan Delegasi dari IMT-GT WGE, Delegasi dari Indonesia Diketuai oleh Dr. Ir. Haruki Agustina dan Thailand Diketuai oleh Puan Wacharee Chuaysri / Among the Delegations from IMT-GT WGE, the Delegation from Indonesia was Led by Dr. Ir. Haruki Agustina and Thailand led by Madam Wacharee Chuaysri



▲ Delegasi IMT-GT WGE mengadakan Lawatan ke Pusat Data Alam Sekitar
The IMT-GT WGE Delegation Visited the Environmental Data Centre



◀ Barisan Delegasi IMT-GT WGE yang terdiri dari Delegasi Indonesia, Thailand dan Malaysia
The IMT-GT WGE Delegation consisting of Delegations from Indonesia, Thailand and Malaysia

ASEAN WORKING GROUP ON ENVIRONMENTAL EDUCATION (AWGEE) KE-16

Delegasi Malaysia telah menghadiri Mesyuarat AWGEE ke-16 secara atas talian yang telah dipengerusikan oleh Kemboja dan tuan rumah adalah Myanmar.

Mesyuarat AWGEE adalah satu kumpulan kerja AWGEE yang berperanan utama dalam menyokong aspirasi ASEAN Senior Officials on the Environment (ASOEN) untuk meningkatkan persefahaman dan kerjasama erat di antara semua ASEAN Member States (AMS) yang meliputi Brunei, Kemboja, Indonesia, Lao PDR, Myanmar, Filipina, Singapura, Thailand, Vietnam, Malaysia dan termasuk Rakan ASEAN (ASEAN Partners) untuk menyelaraskan pendekatan pendidikan alam sekitar di rantau ASEAN. Di peringkat negara, Jabatan Alam Sekitar (JAS) merupakan National Focal Point bagi AWGEE Malaysia.

Delegasi Malaysia yang menyertai AWGEE ke-16 pada kali ini diketuai oleh Puan Roslina binti Diwa, Ketua Penolong Pengarah, Bahagian Komunikasi Strategik (BKS) dan turut disertai oleh pegawai-pegawai dari BKS iaitu Puan Karen Chung, Penolong Pengarah Kanan, Seksyen Perhubungan Antarabangsa, manakala wakil dari Seksyen Pendidikan Alam Sekitar ialah Encik Ahmad Bukhori bin Najmi, Penolong Pengarah Kanan dan Puan Siti Sarah binti Mansha, Penolong Pengarah.

Malaysia juga berharap melalui platform AWGEE, Malaysia dapat memajukan lagi dan melestarikan kesedaran alam sekitar dalam sistem pendidikan bukan hanya di peringkat tempatan tetapi di peringkat ASEAN serta mencapai matlamat bersama di peringkat ASEAN dalam pengurusan dan perlindungan alam sekitar melalui pendidikan alam sekitar.

16TH ASEAN WORKING GROUP ON ENVIRONMENTAL EDUCATION (AWGEE)

The Malaysian delegation attended the 16th AWGEE Meeting virtually, which was chaired by Cambodia and hosted by Myanmar.

The AWGEE is a key working group that supports the aspirations of the ASEAN Senior Officials on the Environment (ASOEN) to enhance understanding and strengthen cooperation among all ASEAN Member States (AMS) including Brunei, Cambodia, Indonesia, Lao PDR, Myanmar, the Philippines, Singapore, Thailand, Vietnam, and Malaysia as well as ASEAN Partners to align approaches to environmental education across the region. At the national level, the Department of Environment (DOE) is the National Focal Point for AWGEE Malaysia.

The Malaysian delegation that participated in the 16th WGEE this time was led by Ms. Roslina binti Diwa, Principal Assistant Director, Strategic Communication Division (BKS) and was also joined by officers from BKS namely Ms. Karen Chung, Senior Assistant Director, International Relations Section, while the representatives from the Environmental Education Section were Mr. Ahmad Bukhori bin Najmi, Senior Assistant Director and Ms. Siti Sarah binti Mansha, Assistant Director.

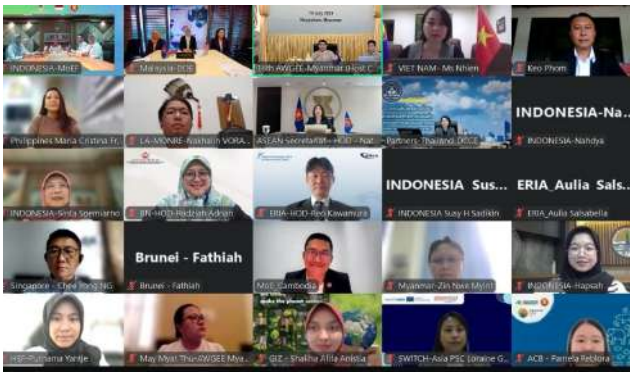
Malaysia hopes that through the AWGEE platform, the country can further advance and sustain environmental awareness within the education system not only at the national level but also across ASEAN. Additionally, Malaysia aims to achieve ASEAN's shared goals in environmental management and protection through environmental education.



▲ Puan Roslina binti Diwa Mengetuai Delegasi Malaysia ke Mesyuarat AWGEE ke-16 dalam Talian / Ms. Roslina binti Diwa Leads Malaysia's Delegation to the 16th AWGEE Meeting online



▲ Antara Wakil Delegasi dari Malaysia yang Menyertai Mesyuarat AWGEE dalam Talian / Among the Representatives of the Delegation from Malaysia who Participated in the Online AWGEE Meeting





▲ Mesyuarat AWGEE ke-16 telah Dijalankan dalam Talian yang Dipengerusikan oleh Kemboja dan Dihoskan oleh Myanmar / The 16th AWGEE Meeting was Conducted Online Chaired by Cambodia and Hosted by Myanmar

MESYUARAT MALAYSIA-SINGAPORE JOINT COMMITTEE ON THE ENVIRONMENT EXPERT GROUP (MSJCE EG) ON VEHICULAR EMISSIONS

Mesyuarat Malaysia-Singapore Joint Committee on the Environment Expert Group on Vehicular Emissions (MSJCE EG (VE)) yang dianjurkan oleh Jabatan Alam Sekitar (JAS), Malaysia sebagai tuan rumah telah berlangsung pada 14-15 Mei 2024 di Malaysia.

MSJCE EG (VE) telah bermula dengan mengadakan lawatan di antara Malaysia dan Singapura pada 14 Mei 2024 ke kilang pemasangan kenderaan berjenama Toyota, iaitu Assembly Services Sdn. Bhd. Bukit Raja Plant (ASSB BRP) di Selangor Darul Ehsan. Lawatan tersebut bertujuan untuk berkongsi maklumat mengenai kemudahan yang berhubung kait dengan teknologi pengoperasian pengeluaran/ pemasangan kenderaan yang berteknologi tinggi dan inisiatif pihak ASSB BRP ke arah meningkatkan kelestarian alam sekitar seperti penggunaan tenaga solar, mengurangkan pelepasan karbon dan sebagainya.

Pada 15 Mei 2024, kerjasama di bawah MSJCE EG diteruskan dengan Mesyuarat MSJCE EG (VE) yang telah dipengerusikan bersama oleh Dr. Norhazni binti Mat Sari, Timbalan Ketua Pengarah (Operasi), JAS dan Puan Tan Li Yen, Group Director, Clean Environment Group, National Environment Agency (NEA), Singapura.

Mesyuarat MSJCE EG (VE) telah dihadiri oleh delegasi Singapura daripada Ministry of Sustainability and the Environment (MSE) dan NEA, Singapura. Delegasi Malaysia pula diwakili oleh pengarah-pengarah JAS daripada Bahagian Penguatkuasa, Bahagian Air dan Marin, Institut Alam Sekitar Malaysia (EiMAS) dan JAS Negeri Johor serta pegawai-pegawai JAS daripada Bahagian Udara, Bahagian Penguatkuasa, Bahagian Air dan Marin, Bahagian Bahan Berbahaya dan Bahagian Komunikasi Strategik.

Mesyuarat MSJCE EG (VE) telah membincangkan dan berkongsi maklumat serta pengalaman mengenai kawalan pelepasan kenderaan dari segi piawaian pelepasan kenderaan, teknologi, penguatkuasaan, usaha serta alternatif lain dalam mengawal pencemaran pelepasan kenderaan bagi meminimumkan kesannya terhadap alam sekitar dan kesihatan awam.

THE MALAYSIA-SINGAPORE JOINT COMMITTEE ON THE ENVIRONMENT EXPERT GROUP ON VECHICULAR EMISSIONS MEETING

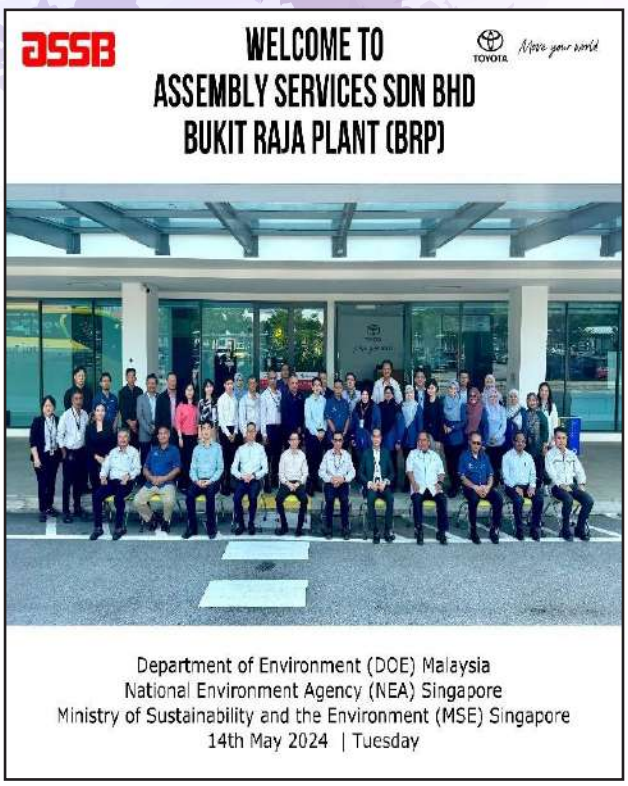
The Malaysia-Singapore Joint Committee on the Environment Expert Group on Vehicular Emissions (MSJCE EG (VE)) Meeting was hosted by the Department of Environment (DOE), Malaysia was held on 14-15 May 2024 in Malaysia.

MSJCE EG (VE) commenced with a visit between Malaysia and Singapore on 14 May 2024 to the Toyota-branded vehicle assembly plant, Assembly Services Sdn. Bhd. Bukit Raja Plant (ASSB BRP), located in Selangor Darul Ehsan. The purpose of the visit was to share information about facilities related to high-tech vehicle production/ assembly operations technology, as well as ASSB BRP's initiatives to improve environmental sustainability, such as solar energy use and carbon emissions reduction.

The collaboration under MSJCE EG continued on 15 May 2024, with the MSJCE EG (VE) Meeting, co-chaired by Dr. Norhazni binti Mat Sari, Deputy Director General (Operation), DOE and Ms. Tan Li Yen, Group Director, Clean Environment Group, National Environment Agency (NEA), Singapore.

The MSJCE EG (VE) meeting was attended by Singapore delegation from the Ministry of Sustainability and the Environment (MSE) and the NEA, Singapore. The Malaysian delegation consisted of DOE directors from the Enforcement Division, Water and Marine Division, Environment Institute of Malaysia (EiMAS), and DOE State Johor, as well as DOE officers from the Air Division, Enforcement Division, Water and Marine Division, Hazardous Substances Division, and Strategic Communications Division.

The MSJCE EG (VE) meeting discussed and shared information and experiences related to vehicle emission control, including vehicle emission standards, technology, enforcement, efforts, and other alternatives for reducing the environmental and public health impact of vehicle emissions.





▼ Lawatan antara Delegasi Malaysia dan Singapura pada 14 Mei 2024
Site Visit between Malaysian and Singaporean Delegations on 14 May 2024





▲ Dr. Norhazni binti Mat Sari dan Puan Tan Li Yen telah Mempengerusikan Bersama Mesyuarat MSJCE EG (VE)
Dr. Norhazni binti Mat Sari and Miss Tan Li Yen Co-Chaired the MSJCE EG (VE) Meeting





▲ Delegasi Malaysia dan Singapura semasa Mesyuarat MSJCE EG (VE)
Delegations from Malaysia and Singapore during the MSJCE EG (VE) Meeting

MESYUARAT MALAYSIA-SINGAPORE JOINT COMMITTEE ON THE ENVIRONMENT EXPERT GROUP (SOJ RELATED ACTIVITIES)

Mesyuarat Malaysia-Singapore Joint Committee on the Environment Expert Group (MSJCE EG (SOJ Related Activities)) telah dianjurkan pada 16 Mei 2025 di Malaysia oleh Jabatan Alam Sekitar (JAS), Malaysia.

Mesyuarat tersebut telah dipengerusikan bersama oleh Dr. Norhazni binti Mat Sari, Timbalan Ketua Pengarah (Operasi), JAS, Malaysia dan Puan Tan Li Yen, Group Director Kumpulan, Clean Environment Group, National Environment Agency (NEA), Singapura.

Mesyuarat tersebut dihadiri oleh delegasi JAS yang terdiri daripada pengarah dan pegawai dari JAS Ibu Pejabat, Institut Alam Sekitar Malaysia (E*i*MAS) dan JAS Negeri Johor dan agensi-agensi lain. Sementara itu, delegasi Singapura dihadiri oleh NEA, Singapura, Singapore Environment Institute (SEI) dan agensi-agensi berkaitan.

Mesyuarat tersebut adalah bertujuan untuk membincangkan pendirian kedua-dua buah negara berhubung isu-isu alam sekitar yang melibatkan Selat Johor, tindakan kawalan pencemaran dan kualiti alam sekitar seperti kualiti air di perairan Selat Johor, pengurusan bahan kimia dan buangan berbahaya, dan hal-hal berkaitan keselamatan dan kerjasama di dalam pengurusan kecemasan dan kawalan pencemaran tumpahan minyak dan bahan kimia.

Mesyuarat tersebut turut membincangkan inisiatif di bawah kerjasama E*i*MAS dan SEI dalam meningkatkan pembangunan kapasiti untuk membina keupayaan dan pengetahuan tentang bagaimana kedua-dua negara boleh melindungi kesihatan dan keselamatan awam dan meminimumkan kesan alam sekitar sekiranya berlaku kejadian pencemaran industri seperti pengurusan bahan berbahaya.

Mesyuarat tersebut juga berharap dapat meningkatkan lagi kerjasama dua hala antara Malaysia dan Singapura secara berterusan dalam menangani isu-isu alam sekitar yang mempunyai kepentingan bersama bagi memastikan perlindungan alam sekitar dan kesejahteraan rakyat dapat terjamin.

THE MALAYSIA-SINGAPORE JOINT COMMITTEE ON THE ENVIRONMENT EXPERT GROUP (SOJ RELATED ACTIVITIES) MEETING

The meeting of the Malaysia-Singapore Joint Committee on the Environment Expert Group (MSJCE EG (SOJ Related Activities)) was organized on 16 May 2025, in Malaysia by the Department of Environment (DOE), Malaysia.

The meeting was co-chaired by Dr. Norhazni binti Mat Sari, Deputy Director General (Operation), DOE, Malaysia and Ms. Tan Li Yen, Group Director, Clean Environment Group, National Environment Agency (NEA), Singapore.

The meeting was attended by the DOE delegation consisting of directors and officers from DOE Headquarters, Environment Institute of Malaysia (E*i*MAS), DOE State Johor, and other related agencies. Meanwhile, the Singapore delegation was attended by NEA, Singapore, the Singapore Environment Institute (SEI), and related agencies.

The meeting aimed to discuss both countries' positions on environmental issues involving the Strait of Johor (SOJ), pollution control measures, and environmental quality, such as water quality in the waters of SOJ, hazardous waste and chemical management, and matters related to safety and cooperation in emergency management and pollution control of oil and chemical spills.

The meeting also discussed initiatives related to the E*i*MAS and SEI collaboration to improve capacity building and knowledge of how both countries could protect public health and safety while minimising environmental impacts in the event of industrial pollution incidents, such as hazardous material management.

The meeting also hopes to further enhance the ongoing bilateral cooperation between Malaysia and Singapore in addressing environmental issues of mutual interest to ensure environmental protection.







▲ Dr. Norhazni binti Mat Sari dan Puan Tan Li Yen telah Mempengerusikan bersama Mesyuarat MSJCE EG (SOJ Related Activities) / Dr. Norhazni binti Mat Sari and Miss Tan Li Yen co-chaired the MSJCE EG (SOJ Related Activities) Meeting



▲ Delegasi Malaysia dan Singapura semasa Mesyuarat MSJCE EG MSJCE EG (SOJ Related Activities)
Delegations from Malaysia and Singapore during the MSJCE EG (VE) (SOJ Related Activities) Meeting

MESYUARAT KUMPULAN KERJA JAWATANKUASA BERSAMA MALAYSIA-SINGAPURA MENGENAI ALAM SEKITAR (MSJCE WG)

Mesyuarat MSJCE WG ke-20 telah diadakan pada 4 - 6 September 2024 di Kota Kinabalu, Sabah, di mana Jabatan Alam Sekitar (JAS) adalah selaku penganjur mesyuarat. Mesyuarat dipengerusikan secara bersama oleh YBhg. Dato' Wan Abdul Latiff bin Wan Jaffar, Ketua Pengarah Alam Sekitar, Malaysia dan Encik Wong Kang Jet, Ketua Pegawai Eksekutif, National Environment Agency (NEA), Singapura.

Mesyuarat tersebut telah dihadiri oleh delegasi dari Kementerian Sumber Asli dan Kelestarian Alam (NRES), JAS dan agensi-agensi lain termasuk Jabatan Peguam Negeri, Kementerian Luar Negara, Majlis Keselamatan Negara, Jabatan Laut Malaysia, Lembaga Pelabuhan Johor, Jabatan Pengairan dan Saliran, Pusat Hidrografi Nasional, Agensi Angkasa Malaysia, Jabatan Perikanan Malaysia, Jabatan Ukur dan Pemetaan Malaysia, Pusat Pencerapan Bumi Institut Perubahan Iklim, dan Bahagian Perancang Ekonomi Negeri Johor.

Manakala delegasi Singapura pula terdiri daripada NEA, Ministry of Sustainability and the Environment, Ministry of Foreign Affairs, Attorney-General's Chambers, Ministry of National Development, Maritime and Port Authority, Public Utilities Board, Housing and Development Board, National Parks Board, dan Jurong Town Council.

Antara perkara yang telah dibincangkan dan diselaraskan dalam mesyuarat ini ialah pendirian negara kedua-dua negara berhubung isu-isu alam sekitar yang melibatkan Selat Johor serta meningkatkan kerjasama pembangunan kapasiti melalui institut latihan kedua-dua negara iaitu Institut Alam Sekitar Malaysia (E*i*MAS) dan Singapore Environment Institute (SEI).

Kedua-dua negara berkesempatan melawat Akuarium dan Muzium Marin untuk melihat inspirasi pemuliharaan di laut dan Galeri Azman Hashim di Universiti Malaysia Sabah bagi melihat reka bentuk berkonsepkan 'popular design dan do-able' serta 'typical of Sabah'. Selain itu, semua delegasi juga berpeluang mengetahui kekayaan dan kepelbagaian etnik Sabah melalui lawatan di Perkampungan Budaya Mari-Mari.

THE MALAYSIA-SINGAPORE JOINT COMMITTEE ON THE ENVIRONMENT WORKING GROUP MEETING (MSJCE WG)

The 20th meeting of the MSJCE WG was held from 4 - 6 September 2024, in Kota Kinabalu, Sabah, and was organised by the Department of Environment (DOE). The meeting was co-chaired by YBhg. Dato' Wan Abdul Latiff bin Wan Jaffar, Director General of Environment, Malaysia, and Mr. Wong Kang Jet, CEO of the National Environment Agency (NEA), Singapore.

The Meeting was attended by delegations from the Ministry of Natural Resources and Environmental Sustainability (NRES), DOE and other agencies such as Attorney General's Chambers, Ministry of Foreign Affairs, National Security Council, Malaysia Marine Department, Johor Port Authority, Department of Irrigation and Drainage, National Hydrographic Centre, Malaysian Space Agency, Department of Fisheries Malaysia, Department of Survey and Mapping Malaysia, Earth Observation Centre, Institute of Climate Change, and Johor State Economic Planning Division.

Singapore's delegation includes the NEA, Ministry of Sustainability and the Environment, Ministry of Foreign Affairs, Attorney-General's Chambers, Ministry of National Development, Maritime and Port Authority, Public Utilities Board, Housing and Development Board, National Parks Board, and Jurong Town Council.

Among the matters that have been discussed and coordinated in this meeting are the country position of both countries regarding environmental issues involving the Strait of Johor as well as increasing capacity building cooperation through the training institute of the two countries, namely the Environment Institute of Malaysia (E*i*MAS) and the Singapore Environment Institute (SEI).

Both countries had the opportunity to visit the Aquarium and Marine Museum to see the inspiration of conservation in the sea and the Azman Hashim Gallery at University Malaysia Sabah to see designs with the concept of 'popular design and do-able' and 'typical of Sabah'. In addition, all delegations also had the opportunity to learn about the richness and ethnic diversity of Sabah through a visit to the Mari-Mari Cultural Village.



◂ YBhg. Dato' Wan Abdul Latiff bin Wan Jaffar dan Encik Wong Kang Jet Mempengerusikan Bersama Mesyuarat MSJCE WG ke-20 / YBhg. Dato' Wan Abdul Latiff bin Wan Jaffar and Mr. Wong Kang Jet Co-Chaired the 20th MSJCE WG Meeting



▸ Delegasi Malaysia dan Singapura semasa Mesyuarat MSJCE WG ke-20 Malaysia and Singapore Delegation during the 20th MSJCE WG Meeting







▴ Pengurusan Tertinggi Malaysia dan Singapura semasa Mesyuarat MSJCE WG ke-20 / The Top Management of Malaysia and Singapore during the 20th MSJCE WG Meeting



▲ Lawatan antara Delegasi Malaysia dan Singapura pada 5 September 2024
Visit between Malaysian and Singaporean Delegations on 5 September 2024

MESYUARAT JAWATANKUASA BERSAMA MALAYSIA-SINGAPURA MENGENAI ALAM SEKITAR (MSJCE)

Mesyuarat MSJCE merupakan mesyuarat dua hala yang diadakan secara bergilir di antara Malaysia dan Singapura bagi peringkat kementerian untuk membincangkan dan meningkatkan persefahaman dan kerjasama erat di antara kedua-dua negara untuk mencapai matlamat bersama dalam pengurusan dan perlindungan alam sekitar.

Singapura menjadi tuan rumah mesyuarat MSJCE ke-35, yang berlangsung pada 26 November 2024. YBhg. Datuk Dr. Ching Thoo A/L Kim, Ketua Setiausaha, Kementerian Sumber Asli dan Kelestarian Alam (NRES), Malaysia, dan Encik Stanley Loh, Setiausaha Tetap, Kementerian Kemampanan dan Sekitaran (MSE), Singapura, telah mempengerusi bersama mesyuarat tersebut.

Pada Mesyuarat MSJCE ke-35, Jabatan Alam Sekitar (JAS) telah diwakili oleh YBhg. Dato' Wan Abdul Latiff Wan Jaffar, Ketua Pengarah Alam Sekitar selaku ketua delegasi JAS dan pengerusi bersama Kumpulan Kerja MSJCE (MSJCE WG) turut hadir bersama Puan Rohimah Ayub, Pengarah, Bahagian Penilaian, Dr. Mohd Famey Yusoff, Pengarah JAS Negeri Johor, Puan Nabilah Fatin daripada Seksyen Dasar, Bahagian Penilaian dan Puan. Karen Chung, Seksyen Perhubungan Antarabangsa, Bahagian Komunikasi Strategik. Delegasi Malaysia lain yang terlibat adalah NRES selaku Sekretariat MSJCE, agensi di bawah Kementerian serta agensi lain.

Semasa mesyuarat MSJCE ke-35, YBhg. Dato' Wan Abdul Latiff Wan Jaffar telah melaporkan bagi pihak MSJCE WG mengenai keputusan Mesyuarat MSJCE WG ke-20 yang telah diadakan pada 4-6 September 2024 di Kota Kinabalu, Sabah berkaitan pendirian kedua-dua buah negara berhubung isu-isu alam sekitar yang melibatkan Selat Johor (SOJ), tindakan kawalan pencemaran dan kualiti alam sekitar seperti kenderaan bermotor, kualiti air di perairan SOJ, pengurusan bahan kimia dan buangan berbahaya, hal-hal berkaitan keselamatan dan kerjasama di dalam pengurusan kecemasan dan kawalan pencemaran tumpahan minyak dan bahan kimia serta meningkatkan kerjasama pembangunan kapasiti (capacity building) melalui pusat latihan kedua-dua negara iaitu Institut Alam Sekitar Malaysia (E*i*MAS) dan Singapore Environment Institute (SEI).

THE MALAYSIA-SINGAPORE JOINT COMMITTEE ON THE ENVIRONMENT MEETING (MSJCE)

The MSJCE meeting is a bilateral meeting held alternately between Malaysia and Singapore at the ministerial level to discuss and enhance mutual understanding and close cooperation between the two countries to achieve common goals in environmental management and protection.

Singapore hosted the 35th MSJCE meeting, which took place on 26 November 2024. YBhg. Datuk Dr. Ching Thoo A/L Kim, Secretary-General, Ministry of Natural Resources and Environmental Sustainability (NRES), Malaysia, and Mr. Stanley Loh, Permanent Secretary, Ministry of Sustainability and the Environment (MSE), Singapore, co-chaired the meeting.

At the 35th MSJCE Meeting, the Department of Environment (DOE) was represented by YBhg. Dato' Wan Abdul Latiff Wan Jaffar, Director General of Environment, as the head delegation for DOE and co-chair of the MSJCE Working Group (MSJCE WG), who was also accompanied by Ms. Rohimah Ayub, Director, Assessment Division; Dr. Mohd Famey Yusoff, Director, DOE State of Johor State; Ms. Nabilah Fatin from the EIA Policy Section, Assessment Division; and Ms. Karen Chung, International Relations Section, Strategic Communication Division. Other Malaysian delegates include NRES, which serves as the MSJCE secretariat, as well as agencies under the ministry and other agencies.

On behalf of the MSJCE WG, YBhg. Dato' Wan Abdul Latiff Wan Jaffar reported at the 35th MSJCE meeting on the outcome of the 20th MSJCE WG meeting, which was held in Kota Kinabalu, Sabah, from 4-6 September 2024, on the countries' positions on environmental issues involving the Strait of Johor (SOJ), pollution control measures and environmental quality, including motor vehicles, water quality in the SOJ, management of chemicals and hazardous waste, and issues related to safety and cooperation in emergency management and pollution control of chemical and oil spills, and enhancing cooperation in capacity building through the training institutes of both countries, namely the Environment Institute of Malaysia (E*i*MAS) and the Singapore Environmental Institute (SEI).



◂ YBhg. Datuk Dr. Ching Thoo A/L Kim dan Encik Stanley Loh, telah Mempengerusi Bersama Mesyuarat MSJCE ke-35
YBhg. Datuk Dr. Ching Thoo A/L Kim and Mr. Stanley Loh Co-Chaired the 35th MSJCE Meeting



▲ YBhg. Dato' Wan Abdul Latiff Wan Jaffar telah Melaporkan bagi pihak MSJCE WG mengenai Keputusan Mesyuarat / MSJCE WG ke-20 / YBhg. Dato' Wan Abdul Latiff Wan Jaffar has Reported on behalf of the MSJCE WG on the Outcome of the 20th MSJCE WG Meeting



▲ Pengurusan Tertinggi Malaysia (NRES & JAS) dan Singapura (MSE & NEA) semasa Mesyuarat MSJCE ke-35 / The Top Management of Malaysia (NRES & DOE) and Singapore (MSE & NEA) during the 35th MSJCE Meeting



▲ Delegasi Malaysia dan Singapura semasa Mesyuarat MSJCE ke-35 / Malaysia and Singapore Delegation during the 35th MSJCE WG Meeting

MESYUARAT LAWATAN MUHIBAH TAHUNAN MALAYSIA DAN SINGAPURA (MSAEV)

Mesyuarat MSAEV ke-33 telah diadakan di antara kedua-dua negara di Singapura. Tujuan MSAEV dilaksanakan adalah bagi menzahirkan komitmen bersama di antara kedua-dua negara untuk bekerjasama dalam memelihara alam sekitar di dalam dan sekitar perairan Selat Johor (SOJ).

Mesyuarat ke-33 MSAEV telah diadakan di Singapura pada 27 November 2024. Mesyuarat tersebut dipengerusikan bersama oleh YB Nik Nazmi bin Nik Ahmad, Menteri Kementerian Sumber Asli dan Kelestarian Alam (NRES) dan Puan Grace Fu, Menteri Kemampanan dan Sekitaran, Singapura.

Delegasi Malaysia yang diketuai oleh YB Nik Nazmi bin Nik Ahmad terdiri daripada Ketua Setiausaha, YBhg. Datuk Dr. Ching Thoo A/L Kim dan pegawai-pegawai dari NRES, Jabatan Alam Sekitar (DOE), serta agensi-agensi berkaitan lain.

Pada Mesyuarat MSAEV ke-33, kehadiran delegasi JAS telah diwakili oleh YBhg. Dato' Wan Abdul Latiff bin Wan Jaffar, Ketua Pengarah Alam Sekitar sebagai ketua delegasi JAS turut hadir bersama Puan Rohimah binti Ayub, Pengarah, Bahagian Penilaian, Dr. Mohd Famey Yusoff, Pengarah JAS Negeri Johor, Puan Nabilah Fatin daripada Seksyen Dasar, Bahagian Penilaian dan Puan Karen Chung, Seksyen Perhubungan Antarabangsa, Bahagian Komunikasi Strategik.

Semasa MSAEV ke-33, kedua-dua Menteri telah meneliti kemajuan yang telah dicapai oleh MSJCE ke-35 yang telah bermesyuarat pada 26 November 2024 dan bertukar-tukar pandangan mengenai pelbagai isu yang berkaitan dengan alam sekitar dan kelestarian terutamanya di dalam dan sekitar SOJ.

Selain itu, program MSAEV tersebut juga diteruskan dengan lawatan bersama antara delegasi Malaysia dan Singapura di Marina Barrage, Sustainable Singapore Gallery dan Gardens by the Bay.

MALAYSIA-SINGPORE ANNUAL EXCHANGE OF VISITS (MSAEV)

The 33rd MSAEV meeting between the two countries was held in Singapore. The purpose of MSAEV is to establish both countries' shared commitment to preserving the environment in and around the waters of the Strait of Johor (SOJ).

The 33rd Meeting of the MSAEV was held in Singapore on 27 November 2024. The Meeting was co-chaired by YB Nik Nazmi bin Nik Ahmad, Minister for the Ministry of Natural Resources and Environmental Sustainability (NRES), Malaysia and Ms. Grace Fu, Minister for the Ministry of Sustainable and the Environment (MSE) Singapore.

The Malaysia delegation led by YB Nik Nazmi bin Nik Ahmad consisting of Secretary General, YBhg. Datuk Dr. Ching Thoo A/L Kim and officers from NRES, Department of Environment (DOE), and other related agencies.

At the 33rd MSAEV Meeting, the presence of the DOE delegation was represented by YBhg. Dato' Wan Abdul Latiff bin Wan Jaffar, Director General of Environment, as the head of the DOE delegation, along with Ms. Rohimah binti Ayub, Director, Assessment Division; Dr. Mohd Famey Yusoff, Director, DOE State of Johor State, Ms. Nabilah Fatin from the EIA Policy Section, Assessment Division; and Ms. Karen Chung, International Relations Section, Strategic Communication Division.

During the 33rd MSAEV meeting, both ministers reviewed the progress achieved by the 35th MSJCE meeting held on 26 November 2024 and exchanged views on various issues related to the environment and sustainability, particularly in and around the waters of the SOJ.

In addition, the MSAEV programme continued with a joint visit by Malaysian and Singaporean delegations to the Marina Barrage, Sustainable Singapore Gallery, and Gardens by the Bay.





▲ YB Nik Nazmi bin Nik Ahmad, Menteri NRES, Malaysia dan Puan Grace Fu, Menteri MSE, Singapura Mempengerus Bersama Mesyuarat MSAEV ke-33 / YB Nik Nazmi bin Nik Ahmad, Minister for the NRES, Malaysia and Ms. Grace Fu, Minister for the MSE, Singapore Co-Chaired the 33rd MSAEV Meeting



▲ Delegasi Malaysia dan Singapura semasa Mesyuarat MSAEV ke-33
Malaysia and Singapore Delegation during the 33rd MSAEV Meeting



▲ Delegasi Malaysia semasa Mesyuarat MSAEV ke-33
Malaysia delegation during the 33rd MSAEV Meeting



▲ Lawatan Bersama antara Delegasi Malaysia dan Singapura di Marina Barrage, Sustainable Singapore Gallery dan Gardens by the Bay / Joint Visit between Malaysian and Singaporean Delegations to the Marina Barrage, Sustainable Singapore Gallery a nd Gardens by the Bay



BAB
CHAPTER
06

PROGRAM-PROGRAM PROMOSI DAN KESEDARAN
PROMOTIONAL AND AWARENESS PROGRAMMES

PROGRAM-PROGRAM PROMOSI DAN KESEDARAN
PROMOTIONAL AND AWARENESS PROGRAMMES

BENGKEL SEMAKAN DAN PEMURNIAN DERAF LAPORAN KUALITI ALAM SEKELILING (EQR) 2023

Bengkel Semakan dan Pemurnian Deraf Laporan Kualiti Alam Sekeliling (EQR) 2023 telah dianjurkan oleh Unit Penerbitan, Bahagian Komunikasi Strategik dari 6 - 8 Mei 2024 di Hotel Avillion Admiral Cove, Port Dickson.

Penerbitan Laporan EQR ini adalah bagi memenuhi keperluan Seksyen 3(1)(i) Akta Kualiti Alam Sekeliling 1974. Laporan Tahunan JAS diterbitkan untuk melaporkan pelbagai aktiviti, sumbangan, kejayaan dan pencapaian JAS sebagai bukti komitmen warga JAS dalam memberikan perkhidmatan yang terbaik kepada rakyat.

Bengkel ini melibatkan penanggungjawab yang terdiri daripada pegawai-pegawai JAS dari Bahagian Air dan Marin, Bahagian Udara, Bahagian Bahan Berbahaya dan Bahagian Komunikasi Strategik Ibu Pejabat. Ia telah dirasmikan oleh YBrs. Puan Mashitah binti Darus, Timbalan Ketua Pengarah (Pembangunan) JAS.

Objektif utama bengkel ini dianjurkan adalah bagi menyemak dan memastikan draf yang disediakan oleh Bahagian-bahagian yang terlibat telah sempurna dan menepati kehendak pengurusan tertinggi Jabatan sebelum dibekalkan kepada syarikat pembekal yang akan menjalankan kerja-kerja rekabentuk dan susun atur.

Output daripada bengkel ini adalah satu set lengkap draf pertama Laporan Kualiti Alam Sekeliling (EQR) 2023 yang sempurna bagi tujuan penyusunan reka bentuk oleh pihak pembekal.

Bengkel yang diadakan ini telah mencapai objektif yang disasarkan di mana pegawai-pegawai yang hadir telah memberikan komitmen yang tinggi dalam melaksanakan tanggungjawab yang diamanahkan dan diharapkan penerbitan Laporan Kualiti Alam Sekeliling (EQR) 2023 adalah lebih baik terutama dari segi kualiti.

WORKSHOP ON REVIEWING AND FINALIZING THE CONTENT OF THE ENVIRONMENTAL QUALITY REPORT (EQR) 2023 DRAFT

The workshop on reviewing and finalizing the content of the Environmental Quality Report (EQR) 2023 draft was organized by the Publication Unit, Strategic Communications Division, from 6 – 8 May 2024 at the Avillion Admiral Cove Hotel in Port Dickson.

The EQR is published to fulfill the requirements outlined in Section 3(1)(i) of the Environmental Quality Act 1974. The DOE Annual Report aims to disseminate information on various activities, contributions, successes, and achievements of the Department of Environment (DOE), serving as evidence of DOE's commitment to providing exemplary service to the nation.

The workshop was attended by DOE officers from the Water and Marine Division, Air Division, Hazardous Substances Division, and Strategic Communication Division Headquarters. It was officiated by Mrs. Hajah Mashitah binti Darus, Deputy Director General (Development).

The primary objective of the workshop was to review and ensure that the drafts prepared by the divisions involved were complete and aligned with the Department's top management requirements, before the appointed printing company proceed with the design and layout work.

The output of the workshop was a finalized first draft of the Environmental Quality Report (EQR) 2023, ready for design preparation by the supplier.

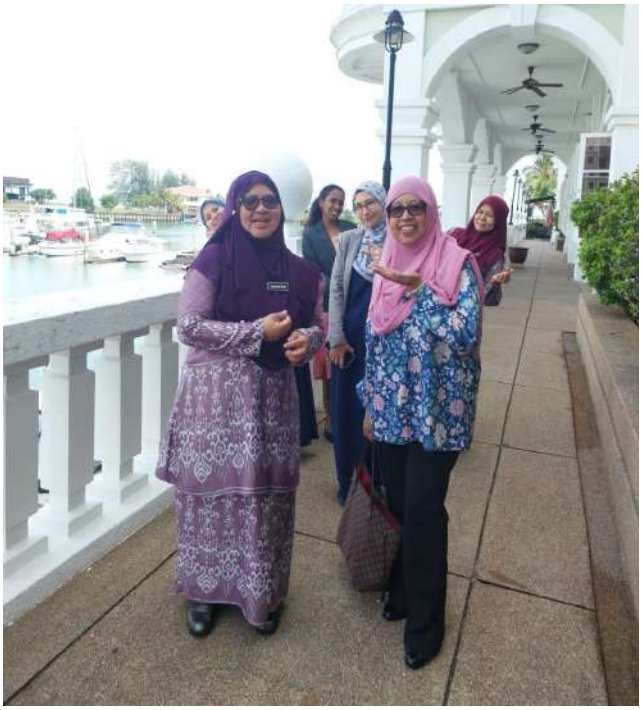
This workshop successfully met its objectives, with the officers demonstrating strong commitment to their assigned responsibilities. It is expected that the quality of the Environmental Quality Report (EQR) for the year 2023 will be significantly improved as a result of this workshop.



▲ Sesi Semakan dan Perbincangan Penambahbaikan Draf Laporan Kualiti Alam Sekeliling 2023
Review and Discussion Session for Improvement of the Draft Environmental Quality Report 2023



▲ Pegawai-pegawai Bertanggungjawab (Person-in-Charge) Penyediaan Draf Laporan Kualiti Alam Sekeliling 2023 dalam Penyediaan Draf Laporan Kualiti Alam Sekeliling 2023
Officers Responsible for the Preparation of the Draft Environmental Quality Report 2023



▲ Puan Hajah Mashitah binti Darus (Timbalan Ketua Pengarah Pembangunan) dan Puan Hajah Azuri Azizah binti Haji Saedon (Pengarah Komunikasi Strategik) / Puan Hajah Mashitah binti Darus (Deputy Director General of Development) and Puan Hajah Azuri Azizah binti Haji Saedon (Director of Strategic Communications)

UNIT KOMUNIKASI KORPORAT JABATAN ALAM SEKITAR

Dalam era maklumat tanpa sempadan yang didorong oleh perkembangan pesat media sosial, Unit Komunikasi Korporat (UKK) terus memainkan peranan strategik dalam memastikan penyampaian maklumat yang berkesan, memperkukuh imej organisasi, serta memelihara hubungan strategik yang mencerminkan fungsi dan peranan Jabatan secara keseluruhan.

Sepanjang tahun 2024, UKK telah memberi fokus utama kepada usaha memperkasa saluran komunikasi digital, khususnya melalui platform media sosial yang semakin mendapat tempat dalam kalangan masyarakat. Sehubungan itu, beberapa inisiatif telah dilaksanakan bagi menyampaikan maklumat secara lebih inklusif, mesra pengguna dan relevan dengan keperluan semasa.

Antara inisiatif utama yang telah dilaksanakan termasuk:

Perkongsian Berfokus di Media Sosial

UKK telah merangka dan melaksanakan strategi perkongsian maklumat berfokus yang menampilkan fungsi dan peranan Jabatan, termasuk proses kerja dan bidang kuasa utama, melalui pendekatan santai tetapi bermaklumat. Pendekatan ini bertujuan meningkatkan kefahaman masyarakat terhadap peranan Jabatan dalam pengurusan alam sekitar secara menyeluruh.

Siri Temu Bual Radio Berkenaan Pindaan Akta Kualiti Alam Sekeliling (Pindaan) 2024

Sebagai usaha memperluas capaian maklumat kepada khalayak yang lebih luas, UKK telah menyelaras beberapa siri temu bual radio bersama Pengarah-Pengarah Negeri. Temu bual ini memberi tumpuan kepada penerangan mengenai Pindaan Akta Kualiti Alam Sekeliling 2024, dengan penekanan kepada aspek pemahaman awam terhadap pindaan tersebut serta kepentingan dalam melindungi hak awam dan memperkukuh tanggungjawab kolektif terhadap pemeliharaan dan pemuliharaan alam sekitar.

Usaha-usaha ini merupakan sebahagian daripada strategi bersepadu UKK dalam memastikan komunikasi Jabatan terus relevan, responsif dan mampu memenuhi keperluan pelbagai lapisan masyarakat.

Sebagai memenuhi hasrat untuk menyuburkan pembudayaan pemeliharaan alam sekitar dalam kalangan generasi pemimpin masa hadapan, Jabatan telah melaksanakan Program Ketua Pengarah Alam Sekitar

DEPARTMENT OF ENVIRONMENT, CORPORATE COMMUNICATION UNIT

In an era of borderless information driven by the rapid growth of social media, the Corporate Communications Unit (CCU) continues to play a strategic role in ensuring effective information dissemination, strengthening the organisation's image, and maintaining strategic relationships that reflect the overall function and role of the Department.

Throughout 2024, the CCU focused on strengthening digital communication channels, particularly via social media platforms that have become increasingly popular among the public. Accordingly, several initiatives were implemented to deliver information that is inclusive, user-friendly, and relevant to current needs.

Key initiatives implemented include:

Targeted Social Media Content Sharing

The CCU developed and implemented a focused information-sharing strategy that highlighted the functions and roles of the Department, including key work processes and areas of jurisdiction, using an informal yet informative approach. This initiative aimed to enhance public understanding of the Department's responsibilities in managing environmental affairs.

Radio Interview Series on the Environmental Quality (Amendment) Act 2024

As part of efforts to broaden outreach, the CCU coordinated a series of radio interviews with State Directors. These interviews focused on explaining the Environmental Quality (Amendment) Act 2024, with emphasis on increasing public awareness and understanding of the amendment's significance in protecting public rights and reinforcing shared responsibilities in environmental conservation and preservation.

These efforts are part of the CCU's integrated strategy to ensure the Department's communications remain relevant, responsive, and capable of meeting the needs of diverse community groups.

In support of efforts to cultivate a culture of environmental conservation among future leaders, the Department organised the Director General of Environment with the Media Programme, which also

bersama Media, yang turut melibatkan penyertaan pemenang Sekolah Lestari bagi sesi 2023/2024. Program ini merupakan satu inisiatif berterusan Jabatan dalam menggalakkan penyertaan media sebagai rakan strategik dalam usaha mendidik generasi muda mengenai peranan dan tanggungjawab terhadap alam sekitar, selaras dengan usaha memelihara warisan masa hadapan.

Penganjuran program sebegini juga dilihat sebagai pendekatan menyeluruh dalam menyemai budaya positif di semua peringkat masyarakat, berdasarkan prinsip bahawa pencegahan adalah lebih baik daripada pemulihan. Melalui libat urus ini, mesej kesedaran dapat disampaikan dengan lebih berkesan kepada khalayak sasaran.

Selain itu, Jabatan turut mengadakan beberapa sesi interaktif bersama pihak media, yang bertindak sebagai platform komunikasi dua hala untuk mendapatkan pandangan dan maklum balas media berhubung pelaksanaan dan aspek penting di bawah Penilaian Kesan Alam Sekitar (EIA). Perkongsian maklumat ini adalah sebahagian daripada usaha memperkukuh kefahaman awam mengenai fungsi serta peranan Jabatan secara menyeluruh.

Sepanjang tahun ini, UKK juga telah menyelaras beberapa sesi temu bual bersama stesen televisyen utama negara sebagai salah satu pendekatan memperluas capaian dan penyampaian maklumat Jabatan kepada kumpulan sasar yang berbeza. Pendekatan pelbagai saluran ini memperlihatkan usaha berterusan Jabatan dalam membina jaringan komunikasi bersepadu, sekali gus menjadi sebahagian daripada proses literasi media yang penting agar masyarakat menerima maklumat yang sahih dan tepat, berlandaskan prinsip bahawa "Alam Sekitar adalah Tanggungjawab Bersama."

Bagi memperkasa keupayaan pegawai dan mempelbagaikan kemahiran pelaksanaan tugasan rasmi, Unit Komunikasi Korporat (UKK) telah menyelaras penganjuran Kursus Pengacaraan Majlis peringkat Jabatan. Kursus ini bertujuan untuk menyediakan platform kepada pegawai yang berpotensi agar dapat meningkatkan keyakinan dan kemahiran dalam mengendalikan majlis rasmi secara profesional.

Penyertaan kursus ini melibatkan pegawai-pegawai Jabatan yang dikenal pasti memiliki minat dan bakat dalam bidang pengacaraan majlis, sekali gus membuka peluang kepada mereka untuk menonjolkan potensi dan menyumbang secara langsung dalam penganjuran acara-acara rasmi Jabatan.

involved winners of the Sustainable School Programme for the 2023/2024 session. This initiative reflects the Department's continuous commitment to engage the media as strategic partners in educating the younger generation about their roles and responsibilities in preserving the environment, in line with the goal of safeguarding our shared natural heritage for the future.

Such programmes represent a holistic approach to instilling positive values across various societal levels, based on the principle that prevention is better than cure. Through this engagement, key environmental messages can be more effectively communicated to target audiences.

In addition, the Department conducted several interactive sessions with media representatives, which served as two-way communication platforms to obtain media feedback and perspectives on the implementation and critical aspects of the Environmental Impact Assessment (EIA) process. These discussions were part of the Department's effort to provide greater clarity and public understanding of its functions and responsibilities.

Throughout the year, the Corporate Communications Unit also coordinated a series of television interviews with various national stations as part of the Department's initiative to diversify its communication channels and tailor information delivery according to specific target groups. This integrated communication approach reflects the Department's ongoing commitment to building effective media literacy and ensuring that all stakeholders receive accurate and reliable information—underscoring the principle that "Environment is a Shared Responsibility."

In an effort to strengthen staff capabilities and diversify skill sets for the execution of official duties, the Corporate Communications Unit (CCU) coordinated the Department's Emceeing Skills Course. The course was designed to provide a platform for officers with potential to enhance their confidence and professionalism in hosting official events.

Participation in this course involved officers identified as having an interest and talent in emceeing, offering them the opportunity to further develop their skills and contribute directly to the smooth organisation of the Department's formal events.

Inisiatif ini turut dilihat sebagai satu langkah strategik ke arah melahirkan pegawai serba boleh yang mampu melaksanakan pelbagai peranan dengan lebih efektif dan efisien, sejajar dengan usaha berterusan Jabatan untuk memperkukuh kapasiti dan profesionalisme perkhidmatan awam.

This initiative is also viewed as a strategic move towards producing versatile officers who are capable of performing multiple roles more effectively and efficiently, in line with the Department's ongoing efforts to strengthen public service capacity and professionalism.







▲ Temubual Radio Pewartaan Kuat Kuasa Akta Kualiti Alam Sekeliling (Pindaan) 2024
Radio Interview on the Gazettement and Enforcement of the Environmental Quality (Amendment) Act 2024













▲ Sesi perkongsian Ketua Pengarah Jabatan Alam Sekitar bersama Media mengenai Isu-Isu Alam Sekitar
Director General of the Department of Environment's sharing session with the media, related to environmental issues

SEKSYEN PENDIDIKAN ALAM SEKITAR

PROGRAM PENDIDIKAN ALAM SEKITAR PERINGKAT SEKOLAH

Program Sekolah Lestari Anugerah Alam Sekitar (SLAAS) telah memasuki kitar kesembilan bagi sesi 2023/2024. Sehingga kitar kesembilan, sebanyak 1,737 sekolah (merangkumi sekolah rendah dan menengah) telah menyertai program ini. Oleh itu bagi meningkatkan penyertaan sekolah-sekolah di seluruh negara, Jabatan Alam Sekitar (JAS) telah mengambil inisiatif membangunkan Sistem MySLAAS pada tahun ini. Sistem ini telah dibangunkan dengan menggunakan peruntukan di bawah Rancangan Malaysia ke-12 (RMKe-12). Tujuan utama pembangunan MySLAAS adalah bagi memastikan pendaftaran, penilaian dan penyimpanan laporan dan data SLAAS yang lebih mudah dan sistematik.

ENVIRONMENTAL EDUCATION SECTION

ENVIRONMENTAL EDUCATION PROGRAMME AT SCHOOL LEVEL

The Environmental Award Sustainable Schools Programme (SLAAS) has entered the ninth cycle for the 2023/2024 session. As of the ninth cycle, a total of 1,737 schools (including primary and secondary schools) have participated in this programme. Therefore, to increase the participation of schools across the country, the Department of Environment (DOE) has taken the initiative to develop the MySLAAS System this year. This system has been developed using allocations under the 12th Malaysia Plan (12MP). The main purpose of MySLAAS development is to ensure easier and systematic registration, assessment and storage of SLAAS reports and data.



▲ Paparan utama Portal MySLAAS / Main view of MySLAAS Portal

Bengkel Panel Penilai SLAAS Sesi 2023/2024

Tahun 2024 merupakan tahun bagi penganugerahan SLAAS sesi 2023/2024. Sebanyak 374 buah sekolah rendah dan menengah seluruh Malaysia telah menyertai SLAAS bagi sesi 2023/2024 ini. Program SLAAS melalui dua tahap fasa penilaian iaitu peringkat negeri dan kebangsaan. Jabatan Alam Sekitar telah melantik pegawai Jabatan Pendidikan Negeri (JPN) serta Pihak Berkuasa Tempatan (PBT) sebagai panel di peringkat negeri. Manakala pada peringkat kebangsaan, panel terdiri daripada pegawai Kementerian Pendidikan Malaysia (KPM) dan Institut Alam Sekitar & Pembangunan (LESTARI), Universiti Kebangsaan Malaysia.

Bagi memberi latihan dan idea serta input-input baru kepada semua panel satu bengkel telah diadakan pada 20 hingga 21 Mac 2024 di Hotel Premiera, Kuala Lumpur. Proses penilaian SLAAS bermula pada 2 Mei sehingga September 2024 bagi kedua-dua penilaian negeri dan kebangsaan.

Latihan dan hands-on telah dikendalikan oleh pegawai JAS, KPM dan LESTARI dan disertai oleh 60 orang peserta seluruh Malaysia yang terdiri daripada pegawai Pejabat Pendidikan Daerah (PPD), PBT dan KPM.

SLAAS Assessment Panel Workshop Session 2023/2024

2024 is the year of SLAAS Award for the 2023/2024 session. A total of 374 primary and secondary schools throughout Malaysia have participated in SLAAS for the 2023/2024 session. The SLAAS programme has two levels of evaluation phases; namely the state and national levels. Department of Environment State also appointed officers from the State Education Department (JPN) and Local Authorities (PBT) as a panelist at the state level. While at the national level, the panel consisted of officers from the Malaysian Ministry of Education (MOE) and the Institute of Environment & Development (LESTARI), Universiti Kebangsaan Malaysia.

In order to provide training, new ideas and inputs to all the panels, a workshop was held on 20 until 21 March 2024 at Hotel Premiera, Kuala Lumpur. The SLAAS assessment process started on 2 May until September 2024 for both state and national assessments.

The training and hands-on was conducted by DOE, MOE, and LESTARI officials and was attended by 60 participants from all over Malaysia consisting of District Education Office (PPD), PBT and MOE officers.

Pihak JAS juga telah menjemput, guru penyelaras SLAAS daripada Sekolah Kebangsaan Air Merah, Kedah yang merupakan Penerima Anugerah SLAAS Peringkat Kebangsaan Sesi 2020-2022 untuk berkongsi kisah kejayaan di sekolah mereka.

The DOE also invited the SLAAS coordinating teacher from Sekolah Kebangsaan Air Merah, Kedah who is the National SLAAS Award Recipient for the 2020-2022 Session to share about their school's success story.



▲ Ucapan Aluan Pengarah Bahagian Komunikasi Strategik
Welcome Speech of the Director of Strategic Communication Division



▲ Ucapan Perasmian Puan Timbalan Ketua Pengarah (Pembangunan / Opening Speech of the Deputy Director General (Development)



▲ Bengkel Panel Panel Penilai SLAAS Sesi 2023/2024
SLAAS Assessment Panel Workshop Session 2023/2024



▲ Peserta Bengkel Panel Panel Penilai SLAAS Sesi 2023/2024 / SLAAS Assessment Panel Workshop Session 2023/2024 Participants

Program Dua Marhalah 2.0: Sekolah Lestari Anugerah Alam Sekitar terbitan Astro Oasis

Program Marhalah 2.0 adalah sebuah program televisyen berbentuk majalah yang memaparkan perjalanan seorang hamba Allah mencari ilmu yang berkonsepkan semi dokumentari. Sekolah Kebangsaan Air Merah, Kedah telah dipilih sebagai subjek bagi episod Sekolah Lestari dalam program ini. Sekolah Kebangsaan Air Merah, Kedah merupakan Penerima Anugerah Sekolah Lestari Kategori Sekolah Kebangsaan bagi Sesi 2020-2022 telah dipilih menjadi lokasi penggambaran untuk program ini.

Dua Marhalah Programme 2.0: Sustainable Schools Environmental Award produced by Astro Oasis

The Marhalah 2.0 programme is a television programme in the concept of a semi-documentary that displays the journey of a servant of God in search of information and knowledge. Sekolah Kebangsaan Air Merah, Kedah has been chosen as the subject for the Sustainable School episode in this programme. This school is the recipient of the Sustainable School Award in the National School Category for the Session 2020-2022. The filming was done in the school compound.

Temubual oleh pengacara En. Pink Azwan bersama Prof. Dr. Ahmad Fariz bin Mohamed, Institut Alam Sekitar & Pembangunan (LESTARI) yang telah bersama-sama SLAAS sejak awal pembentukan program ini sehingga kini telah berjaya membawa penonton menelusuri sejarahnya. Manakala perkongsian oleh Dato' Wan Abdul Latiff bin Wan Jaffar, Ketua Pengarah Alam Sekitar dan Puan Hajah Azuri Azizah binti Haji Saedon, Pengarah Bahagian Komunikasi Strategik telah membuka ruang pengetahuan kepada penonton mengenai objektif utama pembentukan program iaitu bagi melahirkan komuniti sekolah yang mengamalkan gaya hidup lestari.

Sekolah Kebangsaan Air Merah, Kedah sendiri telah membuktikan bahawa pelaksanaan program ini memberi banyak manfaat yang boleh didapati secara langsung dan tidak langsung. Murid di Sekolah Air Merah, Kedah telah mempunyai pengetahuan dalam aktiviti pertanian dan keusahawanan seperti mengumpul dan menjual minyak masak serta buangan elektronik (e-waste), menjual hasil tanaman mereka kepada komuniti dan sebagainya. Mereka bukan sahaja aktif membina jaringan dan jangkauan di dalam negara malahan di luar negara. Program pertukaran dan perkongsian maklumat secara atas talian bersama sekolah di Korea telah memberi nilai tambah kepada murid Sekolah Kebangsaan Air Merah dalam membina keyakinan diri yang tinggi.

Program ini telah ke udara pada 20 September 2024 di saluran ASTRO OASIS (106) dan ASTRO ON THE GO pada pukul 7.30 malam dan 10.00 malam.

Prof. Dr. Ahmad Fariz bin Mohamed, Institute of Environment & Development (LESTARI) who has been with SLAAS from the beginning of the programme, was successfully interviewed by the host Mr. Pink Azwan through the history of SLAAS. While the sharing by Dato' Wan Abdul Latiff bin Wan Jaffar, Director General of the Environment and Mrs. Hajah Azuri Azuri binti Haji Saedon, Director of the Strategic Communications Division expanding the knowledge to the audience about the main objective of the programme which is to create school community that practices sustainable lifestyle.

Sekolah Kebangsaan Air Merah, Kedah has proved that with the implementation of this programme has many benefits that can be obtained directly and indirectly. Students at this school have gained knowledge in agricultural and entrepreneurial activities such as collecting and selling cooking oil and electronic waste (e-waste), selling their crops to the community, and others. They are actively building networks and outreach in the country as well as abroad. Online exchange and information sharing programmes with schools in Korea have given added value to Sekolah Kebangsaan Air Merah's students in uplifting high self-confidence.

The programme was aired on 20 September 2024 on ASTRO OASIS (106) and ASTRO ON THE GO channels at 7.30 pm and 10.00 pm.



▲ Pengarah Bahagian Komunikasi Strategik bersama Guru Besar SK Air Merah, Kedah / Director of the Strategic Communication Division with the Headmaster of SK Air Merah, Kedah



▲ Poster Promosi Program Marhalah 2.0.
Marhalah 2.0 Programme Promotion Poster



▲ Barisan Pegawai yang Menghadiri sesi Lawatan ke SK Air Merah, Kedah sempena Program Rakaman Marhalah 2.0. Officers who Attended the Visit Session to SK Air Merah, Kedah in conjunction with the Marhalah 2.0 Recording Programme



▲ Rakaman Temubual bersama Dato' KPAS bagi Program Dua Marhalah 2.0: Sekolah Lestari Anugerah Alam Sekitar terbitan Astro Oasis / Interview recording with Dato' KPAS for the Dua Marhalah 2.0: Sekolah Lestari Anugerah Alam Sekitar programme produced by Astro Oasis

Sistem MySLAAS

Sistem MySLAAS yang telah dibangunkan sepenuhnya menggunakan peruntukan di bawah Rancangan Malaysia ke-12 (RMKe-12) telah mula beroperasi pada 4 Jun 2024. Portal bagi sistem ini telah boleh dilayari oleh pengguna untuk mendapatkan maklumat terkini mengenai program SLAAS. Walau bagaimanapun, sistem bagi penyertaan program SLAAS akan mula diguna pakai sepenuhnya pada sesi hadapan iaitu 2025/2026 (kitar kesepuluh).

Penyertaan akan menjadi lebih mudah dengan kaedah pendigitalan yang ditawarkan oleh MySLAAS. Masa guru juga dapat dijimatkan kerana ia lebih mesra pengguna. Pengaplikasian sistem ini dijangka akan meningkatkan lagi penyertaan SLAAS pada masa akan datang dan membentuk lebih banyak Sekolah Lestari di Malaysia. Ketersediaan sistem ini telah dihebahkan kepada sekolah-sekolah di seluruh Malaysia melalui Kementerian Pelajaran Malaysia (KPM).



▲ A Poster Pengumuman Go Live Sistem Aplikasi MySLAAS Sekolah Lestari Anugerah Alam Sekitar / Announcement Poster Go Live of the MySLAAS Application System Sustainable School Environmental Award

MySLAAS System

MySLAAS system, which was fully developed under the allocation of 12th Malaysia Plan (12MP) has gone live on 4 June 2024. With that, the system portal can be browsed by users to access latest information regarding the SLAAS programme. The system would be fully implemented in the next session which is 2025/2026 (tenth cycle) for participation of schools in the SLAAS programme.

Participation will be easier and user friendly with the digitization method offered by MySLAAS, thus would shortened teachers' efforts and time in submitting their documents in the system. The application of this system is expected to further increase SLAAS participation in the future and form more Sustainable Schools in Malaysia. The availability of this system has been announced to schools throughout Malaysia through Ministry Of Education (MOE).



▲ Mesyuarat Jawatankuasa Teknikal Sistem Aplikasi SLAAS di Lestari UKM, Bangi / SLAAS Application System Technical Committee Meeting at Lestari UKM, Bangi



▲ Mesyuarat Jawatankuasa Pasukan kerja Sistem Aplikasi SLAAS / SLAAS Application System Working Team Committee Meeting



▲ Mesyuarat Jawatankuasa Pasukan kerja Sistem Aplikasi SLAAS / SLAAS Application System Working Team Committee Meeting

Program Promosi SLAAS (Demonstrasi Pembuatan Racun Serangga Organik)

Bahagian Komunikasi Strategik (BKS), Ibu Pejabat adalah merupakan pembuat dasar yang melibatkan hala tuju bagi pelaksanaan program kesedaran di negeri-negeri. Pada tahun 2024, BKS telah berkolabrasi bersama JAS Negeri Selangor dengan mengadakan program kesedaran alam sekitar di Sekolah Kebangsaan Jalan Empat, Bangi. Sekolah ini merupakan Penerima Anugerah SLAAS Peringkat Negeri Selangor sesi 2020-2022 lalu.

SLAAS Promotion Programme (Organic Insecticide Manufacturing Demonstration)

Strategic Communications Division (BKS) in DOE Headquarters is the division that formulates policies in the implementation of awareness programme in state. In 2024, BKS has collaborated with DOE Selangor in conducting an environmental awareness programme at Sekolah Kebangsaan Jalan Empat, Bangi. The school was the State Level SLAAS Award Recipient for the 2020-2022 session.





▲ Proses Pembuatan Racun Serangga Organik / Process of Making Organic Insecticides



▲ Peralatan yang Digunakan bagi Pembuatan Racun Serangga Organik / Equipment Used for Making Organic Insecticides



▲ Pelajar-pelajar yang Terlibat dalam Pembuatan Racun Serangga Organik / Students Involved in Making Organic Insecticides

Pelbagai aktiviti bersepadu mengenai kesedaran alam sekitar telah dilaksanakan bersama murid-murid seperti bengkel kaedah mewarna dan pertandingan, ceramah alam sekitar, kuiz dan demonstrasi pembuatan racun serangga perosak organik. Promosi ini adalah kerjasama daripada pelbagai seskyen di bawah BKS seperti Seksyen Kesedaran Alam Sekitar, Seksyen Pendidikan Alam Sekitar dan Perpustakaan.

Various integrated activities on environmental awareness were carried out with the students such as workshops on colouring methods and competitions, environmental talks, quizzes, and demonstrations of making organic pesticides. These activities were collaboration with various sections under BKS such as the Environmental Awareness Section, Environmental Education Section, and Library.

Bengkel Pengemaskinian dan Pengharmonian Garis Panduan SLAAS

Seiring dengan pengaplikasian sistem MySLAAS pada sesi 2025/2026 akan datang, Jabatan Alam Sekitar dengan kerjasama LESTARI, UKM akan menerbitkan satu garis panduan yang baharu sebagai panduan kepada guru-guru.

SLAAS Guidelines Reviewing and Harmonization Workshop

Along with the application of the MySLAAS system in the upcoming 2025/2026 session, DOE in collaboration with LESTARI, UKM will publish a new guideline for teachers.

Satu bengkel yang menghimpunkan 30 peserta yang terdiri daripada pegawai JAS seluruh Malaysia, KPM dan LESTARI telah diadakan pada 23 hingga 24 September 2024 di Hotel Holiday Inn, Melaka. Bengkel tersebut telah diterajui oleh sekretariat SLAAS Kebangsaan dan LESTARI, UKM. Hasil dapatan bengkel akan digunakan bagi menerbitkan satu garis panduan yang lebih mudah, ringkas, jelas dan terpandu.

A workshop that consisted of 30 participants from DOE officers, MOE, and LESTARI was held on 23 until 24 September 2024 in Holiday Inn Hotel, Melaka. The workshop was led by the National SLAAS secretariat and LESTARI, UKM. The results of the workshop will be used to publish more simple, concise, clear, and guided guideline.



▲ Penerangan oleh Fasilitator kepada Peserta Bengkel
Explanation by the Facilitator to the Workshop Participants



▲ Perbincangan secara Berkumpulan Peserta Bengkel
Group Discussion of Workshop Participants



▲ Pembentangan oleh Fasilitator kepada Peserta Bengkel
Presentation by the Facilitator to the Workshop Participants



▲ Peserta Bengkel yang Terlibat
Workshop Participants

Majlis Penganugerahan SLAAS Peringkat Kebangsaan

Majlis bagi Penganugerahan SLAAS Peringkat Kebangsaan Sesi 2023/2024 telah diadakan di Pulau Langkawi, Kedah. Penganugerahan tersebut telah dikurniakan oleh oleh Duli Yang Teramat Mulia Tengku Sarafudin Badlishah Ibni Al Aminul Karim Sultan Sallehuddin, Raja Muda Kedah. Sekolah Kebangsaan Bukit Mutiara, Johor dan Sekolah Menengah St Patrick, Tawau, Sabah telah muncul sebagai Penerima Anugerah Sekolah Lestari Peringkat Kebangsaan Sesi 2023/2024 masing-masing bagi kategori sekolah rendah dan menengah. Kedua-dua sekolah ini membawa pulang wang tunai sebanyak RM10,000.00, piala dan sijil.

Finalis pada peringkat kebangsaan terdiri daripada 15 buah sekolah rendah dan 15 buah sekolah menengah seluruh Malaysia. Kesemua sekolah tersebut adalah merupakan Penerima Anugerah SLAAS Peringkat Negeri Sesi 2023/2024 di negeri masing-masing. Program SLAAS merupakan satu usaha yang signifikan dalam menggalakkan keterlibatan semua pihak, termasuk industri dan masyarakat, dalam merealisasikan matlamat kelestarian alam sekitar.



▲ Penyampaian Anugerah oleh DYTM Tengku Sarafudin Badlishah Ibni Al Aminul Karim Sultan Sallehuddin, Raja Muda Kedah kepada SK Bukit Mutiara, Johor Bahru, Johor / Award Presentation by Royal Highness Raja Muda Kedah Tengku Sarafudin Badlishah Ibni Al Aminul Karim Sultan Sallehuddin to SK Bukit Mutiara, Johor Bahru



▲ Penyampaian Anugerah oleh Datuk Dr. Ching Thoo A/L Kim, Ketua Setiausaha (KSU) NRES kepada Sekolah penerima Angerah Khas SLAAS / Award Presentation by Datuk Dr. Ching Thoo A/L Kim, Chief Secretary of NRES to School Recipient Special SLAAS Awards

National Level SLAAS Awards Ceremony

The National Level SLAAS Awards Ceremony for Session 2023/2024 was held in Langkawi Island, Kedah. The award was bestowed by His Royal Highness Raja Muda Kedah Tengku Sarafudin Badlishah Ibni Al Aminul Karim Sultan Sallehuddin. Sekolah Kebangsaan Bukit Mutiara, Johor and Sekolah Menengah St Patrick, Tawau, Sabah have emerged as Recipients of the National Level Sustainable School Award, Session 2023/2024 for the primary and secondary school categories respectively. These two schools won cash amounting to RM10,000.00, trophies, and certificates.

Finalists at the national level consisted of 15 primary schools and 15 secondary schools throughout Malaysia. All the schools were State Level SLAAS Award Recipients for the 2023/2024 Session in their respective states. The SLAAS programme is a significant effort in encouraging the involvement of all parties, including industry and society, in realizing the goal of environmental sustainability.



▲ Penyampaian Anugerah oleh DYTM Tengku Sarafudin Badlishah Ibni Al Aminul Karim Sultan Sallehuddin, Raja Muda Kedah kepada SM St.Patrick, Tawau, Sabah / Award Presentation by Royal Highness Raja Muda Kedah Tengku Sarafudin Badlishah Ibni Al Aminul Karim Sultan Sallehuddin to SM St. Patrick, Tawau, Sabah



▲ Penyampaian Anugerah oleh Datuk Dr. Ching Thoo A/L Kim, Ketua Setiausaha (KSU) NRES kepada Sekolah Penerima Angerah Khas SLAAS / Award Presentation by Datuk Dr. Ching Thoo A/L Kim, Chief Secretary of NRES to School Recipient of Special SLAAS Awards

PERTANDINGAN DEBAT ALAM SEKITAR ANTARA INSTITUSI PENDIDIKAN TINGGI KE-30 TAHUN 2024

Pertandingan Debat Alam Sekitar (DAS) antara Institusi Pendidikan Tinggi (IPT) ke-30 Tahun 2024 menandakan pencapaian penting dalam sejarah pertandingan ini. Pertandingan DAS ini telah melalui perjalanan yang panjang dan signifikan dalam tempoh tiga dasawarsa. Bermula sebagai satu inisiatif untuk mendidik dan meningkatkan kesedaran generasi muda mengenai isu alam sekitar, pertandingan ini telah berkembang menjadi satu platform utama bagi pelajar IPT di seluruh negara untuk mendebatkan topik-topik berkaitan kelestarian, perubahan iklim dan pengurusan sumber semula jadi.

Jabatan Alam Sekitar (JAS) dengan kerjasama Kementerian Pendidikan Tinggi (KPT), Majlis Debat Universiti Malaysia (MADUM), Dewan Bahasa dan Pustaka (DBP), Universiti Tenaga Nasional (UNITEN), Tenaga Nasional Berhad (TNB), Yayasan Canselor UNITEN (YCU) dan Perbadanan Putrajaya (PPj) telah menganjurkan Pertandingan DAS antara IPT ke-30 secara fizikal sepenuhnya. Pertandingan berlangsung dari 25 hingga 28 Oktober 2024 di UNITEN dan Auditorium Tun Azizan Zainul Abidin, Perbadanan Putrajaya bersempena Sambutan Hari Alam Sekitar Negara 2024.

Objektif utama pertandingan adalah untuk meningkatkan kesedaran dan pengetahuan mahasiswa mengenai isu, dasar, serta polisi alam sekitar di peringkat nasional dan antarabangsa. Selain itu, ia bertujuan melatih kemahiran berhujah, berfikir secara kritis, serta membentuk kepimpinan masa depan yang cakna terhadap kelestarian alam sekitar.

DAS antara IPT merupakan program tahunan JAS sejak tahun 1991 dan menjadi legasi debat antara IPT di Malaysia yang paling lama bertahan, malah mengekalkan prestijnya sebagai kejuaraan yang menjadi idaman semua pendebat IPT. Pertandingan ini menggunakan format debat Ala–Parlimen dan terbuka, dengan sistem 'bracket power match'. Sebanyak lima pusingan awal diadakan sebelum saringan ke peringkat suku akhir, separuh akhir dan akhir. Senarai pasukan IPT yang menyertai pertandingan pada tahun 2024 adalah seperti di **Jadual 6.1.**

30th ENVIRONMENTAL DEBATE COMPETITION AMONG HIGHER EDUCATIONAL INSTITUTIONS 2024

The 30th Environmental Debate Competition among Higher Education Institutions (HEI) 2024 marks a significant milestone in the history of this event. Over the past three decades, the competition has undergone a long and meaningful journey. Initially established as an initiative to educate and raise awareness among the younger generation about environmental issues, it has since evolved into a premier platform for university students nationwide to debate topics related to sustainability, climate change, and natural resource management.

The Department of Environment (DOE), in collaboration with the Ministry of Higher Education (KPT), the Malaysian University Debate Council (MADUM), Dewan Bahasa dan Pustaka (DBP), Universiti Tenaga Nasional (UNITEN), Tenaga Nasional Berhad (TNB), the UNITEN Chancellor Foundation (YCU), and Perbadanan Putrajaya (PPj), has organized the 30th Environmental Debate Competition among Higher Education Institutions (HEI) 2024 in a fully physical format. The competition has taken placed (from 25 – 28 October 2024, in UNITEN and Tun Azizan Zainul Abidin Auditorium, Perbadanan Putrajaya) in conjunction with the National Environment Day 2024 celebrations.

The main objective of the competition is to enhance students' awareness and knowledge of environmental issues, policies, and regulations at both national and international levels. Additionally, it aims to develop debating skills, critical thinking abilities, and cultivate future leaders that are environmentally conscious and committed to sustainability.

The Environmental Debate Competition among Higher Education Institutions (HEI) has been an annual DOE programme since 1991 and remains Malaysia's longest-running university debate competition, maintaining its prestige as a championship coveted by all university debaters. The competition follows a Parliamentary-style open debate format with a "bracket power match" system. It consists of five preliminary rounds before moving on to the quarter-finals, semi-finals, and the grand final. The list of participating universities for the 2024 edition is shown in **Table 6.1.**

Jadual 6.1: Senarai Pasukan Institusi Pendidikan Tinggi yang Menyertai Pertandingan
Table 6.1: List of Higher Educational Institutions Team Participated in the Competition

BIL. / NO.	PASUKAN INSTITUSI PENDIDIKAN TINGGI / HIGHER EDUCATIONAL INSTITUTIONS TEAM
1	Universiti Teknologi PETRONAS (UTP)
2	Universiti Teknologi MARA (UiTM)
3	Universiti Malaya (UM)
4	Universiti Pendidikan Sultan Idris (UPSI)
5	Universiti Kebangsaan Malaysia (UKM)
6	Universiti Islam Antarabangsa Malaysia (UIAM)
7	Universiti Malaysia Kelantan (UMK)
8	Universiti Sultan Zainal Abidin (UniSZA)
9	Universiti Tun Hussein Onn Malaysia (UTHM)
10	Universiti Pertahanan Nasional Malaysia (UPNM)
11	Universiti Teknikal Malaysia Melaka (UTeM)
12	Universiti Tenaga Nasional (UNITEN)
13	Universiti Utara Malaysia (UUM)
14	Universiti Malaysia Sabah (UMS)
15	Universiti Sains Malaysia (USM)
16	Universiti Malaysia Terengganu (UMT)
17	Universiti Putra Malaysia (UPM)
18	IPG Kampus Bahasa Antarabangsa (IPGKBA)
19	IPG Kampus Kota Bharu (IPGKKB)
20	IPG Kampus Temenggong Ibrahim (IPGKTI)
21	IPG Kampus Pendidikan Teknik (IPGKPT)
22	IPG Kampus Tengku Ampuan Afzan (IPGKTAA)
23	Universiti Multimedia (MMU)
24	Universiti Poly-Tech Malaysia (UPTM)
25	Universiti Sains Islam Malaysia (USIM)
26	Universiti Malaysia Perlis (UniMAP)
27	Universiti Malaysia Pahang Al-Sultan Abdullah (UMPSA)
28	Universiti Kuala Lumpur (UniKL)
29	Universiti Islam Antarabangsa Sultan Abdul Halim Mu'adzam Shah (UniSHAMS)
30	IPG Kampus Tun Abdul Razak (IPGKTAR)

Selain perdebatan, program kesedaran alam sekitar lain turut dianjurkan bagi memberi galakan kepada pelajar dan orang awam untuk lebih mencintai alam sekitar seperti pameran lestari dan program sisipan Rakan Alam Sekitar (RAS) yang diadakan di sekitar kampus UNITEN dan juga Putrajaya iaitu lawatan teknikal ke:-

(i) Stesen Janakuasa TNB Putrajaya
(ii) TNB Research Sdn. Bhd., UNITEN
(iii) Institut Latihan Sultan Ahmad Shah (ILSAS) TNB

In addition to the debate competition, other environmental awareness programmes were also organized to encourage students and the public to develop greater appreciations for the environment. These included sustainability exhibitions and Rakan Alam Sekitar (RAS) outreach programmes, held around UNITEN campus and Putrajaya. A series of technical visits were also arranged to the following locations:

(i) TNB Power Station, Putrajaya
(ii) TNB Research Sdn. Bhd., UNITEN
(iii) Sultan Ahmad Shah Training Institute (ILSAS), TNB

Pertandingan peringkat akhir yang diadakan pada 28 Oktober 2024 telah berlangsung di Auditorium Tun Azizan Zainul Abidin, Perbadanan Putrajaya di antara pasukan Universiti Kebangsaan Malaysia (UKM) dan Universiti Islam Antarabangsa Malaysia (UIAM) dengan usul perdebatan bertajuk:

"Akta Kualiti Alam Sekeliling 1974: 50 Tahun Tidak Bertepuk Sebelah Tangan".

Majlis perasmian dan penyampaian hadiah telah disempurnakan oleh Ketua Pengarah Alam Sekitar, YBhg. Dato' Wan Abdul Latiff bin Wan Jaffar yang membacakan teks ucapan perasmian Ketua Setiausaha Kementerian Sumber Asli dan Kelestarian Alam (NRES).

Senarai nama pemenang-pemenang adalah seperti yang tertera di **Jadual 6.2.**

The grand final on 28 October 2024 took place at Tun Azizan Zainul Abidin Auditorium, Perbadanan Putrajaya between teams from Universiti Kebangsaan Malaysia (UKM) and International Islamic University Malaysia (IIUM). The motion for the final round was:

"The Environmental Quality Act 1974: 50 Years of Mutual Responsibility"

The opening ceremony and prize-giving session were officiated by the Director-General of the Department of Environment, YBhg. Dato' Wan Abdul Latiff bin Wan Jaffar, who delivered the official speech on behalf of the Secretary-General of the Ministry of Natural Resources and Environmental Sustainability (NRES).

The list of winners is illustrated in **Table 6.2.**

Jadual 6.2 : Senarai Pemenang Pertandingan Debat Alam Sekitar Antara IPT ke-30, 2024
Table 6.2 : The List of Winners of the 30th Environmental Debate Competition among Higher Education Institutions (HEIs), 2024

KATEGORI CATEGORY	NAMA PESERTA DEBAT DEBATERS NAME	PASUKAN TEAM	HADIAH PRIZES
JOHAN WINNER	(1) Muhammad Iman bin Azhar (2) Hafiz Hafizi bin Norependi (3) Adliesyamil Yaasin bin Azman (4) Muhamad Badrul Naim bin Mohd Besri	UKM	▪ RM8,000.00 (wang tunai / cash) ▪ Sijil penyertaan / Certificate of Participation ▪ Piala iringan / Accompanying Trophy ▪ Piala Pusingan Menteri Sumber Asli dan Kelestarian Alam / Minister of Natural Resources and Environmental Sustainability Round Trophy
NAIB JOHAN RUNNER UP	(1) Nurul Hanan Badariah binti Abd Mutalib (2) Nur Syahirah Balqis binti Shahrulnizam (3) Aiman Izdihar bin Amran (4) Luqman Nul Haqim bin Ghazali	UIAM	▪ RM5,000.00 (wang tunai / cash) ▪ Sijil penyertaan / Certificate of Participation ▪ Piala iringan Accompanying Trophy
SEPARUH AKHIR SEMIFINAL	(1) Muhammad Idham Hafizie bin Zainuddin (2) Mohamad Marzuhaimie bin Marzuki (3) Abdul Azim bin Azmi (4) Umi Izzatti binti Khairul Azman	UPNM	▪ RM1,500.00 (wang tunai/ cash) ▪ Sijil penyertaan / Certificate of Participation ▪ Piala iringan / Accompanying Trophy
SEPARUH AKHIR SEMIFINAL	(1) Nurin Nabeeha binti Ramlam (2) Haziq Hilmi bin Zulkifli (3) Muhd Fahmie bin Armadi (4) Muhammad Shahir bin Madzlan	UPTM	▪ RM1,500.00 (wang tunai/ cash) ▪ Sijil penyertaan / Certificate of Participation ▪ Piala iringan / Accompanying Trophy
PENDEBAT TERBAIK AKHIR FINAL BEST DEBATER	Hafiz Hafizi bin Norependi	UKM	▪ RM1,000.00 (wang tunai / cash) ▪ Sijil penyertaan / Certificate of Participation
PENDEBAT TERBAIK LIGA LEAGUE BEST DEBATER	Nur Syahirah Balqis binti Shahrulnizam	UIAM	▪ Piala iringan/ Accompanying Trophy

PENERBITAN BUKU SUARA INTELEKTUAL: TIGA DASAWARSA DEBAT ALAM SEKITAR

Bersempena dengan tiga dekad DAS, Bahagian Komunikasi Strategik telah menerbitkan buku Suara Intelektual: Tiga Dasawarsa Debat Alam Sekitar di bawah Peruntukan Pembangunan RMKe-12. Buku ini telah dilancarkan oleh YBhg. Dato' Wan Abdul Latiff bin Wan Jaffar, Ketua Pengarah Alam Sekitar semasa Pertandingan Akhir Debat Alam Sekitar antara IPT ke-30 Tahun 2024 pada 28 Oktober 2024 di Auditorium Tun Azizan Zainul Abidin, Perbadanan Putrajaya.

Penerbitan buku Suara Intelektual: Tiga Dasawarsa Debat Alam Sekitar bertujuan menjadi sumber rujukan lengkap mengenai sejarah penganjuran DAS selama tiga dekad, termasuk perkembangan pertandingan, usul debat yang dibincangkan, serta perubahan isu persekitaran yang diketengahkan. Buku ini juga menyenaraikan para pemenang terdahulu bersama profil dan sumbangan mereka, selain memberikan maklumat mengenai IPT yang pernah menjadi tuan rumah serta peranan mereka dalam menjayakan DAS. Pandangan dan pengalaman alumni turut dimuatkan, termasuk kisah kejayaan mereka dalam bidang alam sekitar atau bidang lain selepas terlibat dalam debat. Buku ini turut mengabadikan foto-foto bersejarah, gambar aktiviti debat, serta ilustrasi bagi memperkayakan pengalaman pembaca dan menyampaikan semangat pertandingan sepanjang tempoh tiga dasawarsa. Buku boleh dimuat turun melalui QR Code di **Rajah 6.1.**

PUBLICATION OF THE BOOK "VOICE OF INTELLECT: THREE DECADES OF ENVIRONMENTAL DEBATE"

In conjunction with the three decades of the Environmental Debate Competition (DAS), the Strategic Communications Division has published the book "Voice of Intellect: Three Decades of Environmental Debate" under the 12th Malaysia Plan (12MP) Development Allocation. The book was officially launched by YBhg. Dato' Wan Abdul Latiff bin Wan Jaffar, Director-General of the Department of Environment, during the Grand Final of the 30th Environmental Debate Competition among Higher Education Institutions (HEI) 2024, held on 28 October 2024, at the Tun Azizan Zainul Abidin Auditorium, Perbadanan Putrajaya.

The publication of "Voice of Intellect: Three Decades of Environmental Debate" aims to serve as a comprehensive reference on the history of the environmental debate competition over the past thirty years. It covers the development of the competition, debate motions discussed, and the evolving environmental issues highlighted throughout the years. The book also includes a list of past winners, along with their profiles and contributions, as well as information on host universities and their roles in making the environmental debate a success. Additionally, the book features insights and experiences from environmental debate alumni, including their success stories in the environmental field or other industries following their involvement in the debate competition. To enrich the reader's experience, the book also includes historic photographs, images of debate activities, and illustrations that capture the spirit of the competition over the three decades.The book can be downloaded via QR Code in **Figure 6.1.**

Rajah 6.1: Kod QR bagi Muat Turun Buku Suara Intelektual: Tiga Dasawarsa Debat Alam Sekitar
Rajah 6.1: QR Code for Downloading the Book Voice of Intellect: Three Decades of Environmental Debate





▲ Pertandingan Akhir Debat Alam Sekitar antara IPT di antara Pasukan Universiti Kebangsaan Malaysia (UKM) dan Universiti Islam Antarabangsa Malaysia (UIAM)/ The Final Round of the Inter-Varsity Environmental Debate between Universiti Kebangsaan Malaysia (UKM) and Universiti Islam Antarabangsa Malaysia (UIAM)



▲ Johan Pertandingan Debat Alam Sekitar antara Institusi Pendidikan Tinggi (IPT) ke–30/ The Champion of the 30th Annual Environmental Debate Competition among Higher Educational Institutions (HEIs)



▲ Para Penonton Pertandingan Akhir
The audience of the Grand Final Competition



▲ Lawatan Program Sisipan ke Stesen Janakuasa TNB Putrajaya
Insertion Programme Visit to TNB Putrajaya Power Station



▲ Proses Penerbitan Buku Suara Intelektual: Tiga Dasawarsa Debat Alam Sekitar / The Publication Process of the Book Intellectual Voices: Three Decades of Environmental Debate



▲ Lawatan Program Sisipan ke TNB Research Sdn. Bhd., UNITEN
Insertion Programme visit to TNB Research Sdn. Bhd., UNITEN



▲ Muka Depan Buku Suara Intelektual: Tiga Dasawarsa Debat Alam Sekitar
The Front Cover of the Book Intellectual Voices: Three Decades of Environmental Debate

PEMURNIAN GARIS PANDUAN DAN MANUAL PENILAIAN KAMPUS LESTARI – ANUGERAH ALAM SEKITAR (KLAAS)

Pada tahun 2024, Jabatan Alam Sekitar JAS telah menjalin kerjasama strategik dengan Institut Alam Sekitar dan Pembangunan (LESTARI), Universiti Kebangsaan Malaysia (UKM) dalam usaha memurnikan serta menambah baik dokumen Garis Panduan KLAAS dan Manual Penilaian KLAAS sebelum pelaksanaan rasmi program KLAAS di Malaysia. Meskipun dokumen asal telah siap pada penghujung tahun 2022, maklum balas daripada sesi libat urus bersama pemegang taruh pada tahun 2023 menunjukkan keperluan untuk memperkemaskan lagi kandungan agar lebih efektif dan relevan.

Penambahbaikan ini merangkumi ujian kaedah penilaian dengan menggunakan data Kampus UKM serta cadangan penyempurnaan dokumen garis panduan dan Pelan Tindakan Pelaksanaan KLAAS di Malaysia. Hasilnya, satu dokumen baharu yang menggabungkan garis panduan dan manual penilaian akan dibangunkan untuk memastikan keberkesanan program. Selain itu, LESTARI UKM turut memainkan peranan penting dalam membangun kepakaran pegawai JAS dan pihak berkepentingan melalui latihan komprehensif bagi memastikan penggunaan dokumen ini dapat dioptimumkan dengan baik.

PELAKSANAAN BENGKEL LIBAT URUS & PENYEDIAAN MEKANISME KLAAS: KE ARAH KAMPUS LESTARI DI MALAYSIA

JAS terus memperkukuhkan usaha ke arah kampus lestari dengan penganjuran Bengkel Libat Urus Pelaksanaan KLAAS pada 20-21 Mei 2024 di Mardhiyyah Hotel &

REFINEMENT OF THE GUIDELINESSAND EVALUATION MANUAL FOR SUSTAINABLE CAMPUS - ENVIRONMENTAL AWARD (KLAAS)

In 2024, the Department of Environment (DOE) established a strategic collaboration with the Institute for Environment and Development (LESTARI), Universiti Kebangsaan Malaysia (UKM) to improve and enhance the KLAAS Guidelines and Assessment Manual before the official implementation of the Sustainable Campus Environmental Award (KLAAS) programme in Malaysia. Although the original document was completed at the end of 2022, stakeholder engagement sessions in 2023 highlighted the need for further improvements to ensure greater effectiveness and relevancy.

These enhancements included testing the assessment methodology using UKM campus data and proposing refinements to the guidelines document and KLAAS Implementation Action Plan for Malaysia. As a result, a new consolidated document incorporating both the guidelines and assessment manual will be developed to ensure the programme's effectiveness. Additionally, LESTARI UKM played a crucial role in building the expertise of DOE officers and stakeholders through comprehensive training to optimize the use of the document.

STAKEHOLDER ENGAGEMENT WORKSHOP & DEVELOPMENT OF KLAAS MECHANISMS: TOWARDS A SUSTAINABLE CAMPUS IN MALAYSIA

DOE continues to strengthen its efforts towards sustainable campuses through the KLAAS Implementation Stakeholder Engagement Workshop,

Suites, Shah Alam, anjuran Seksyen Pendidikan Alam Sekitar, Bahagian Komunikasi Strategik, JAS. Bengkel ini menghimpunkan pegawai daripada Kementerian Pendidikan Tinggi (KPT), Kementerian Pendidikan Malaysia (KPM), LESTARI UKM, serta wakil daripada beberapa Institusi Pendidikan Tinggi (IPT) terpilih dari seluruh negara. Sesi libat urus ini berjaya merumuskan beberapa hasil utama, termasuk:

- pengumpulan maklumat bagi penambahbaikan Garis Panduan dan Manual Penilaian KLAAS
- pemantapan peranan JAS dalam menguruskan KLAAS di peringkat IPT
- memastikan penyebaran maklumat berterusan mengenai pembudayaan kelestarian alam sekitar di kalangan pemegang taruh.

Seterusnya, Bengkel Penyediaan Mekanisme Pelaksanaan Kampus Lestari – Anugerah Alam Sekitar (KLAAS) diadakan pada 24-26 September 2024 di Holiday Inn, Melaka, dengan penglibatan pegawai JAS yang mengendalikan program Komunikasi, Pendidikan dan Kesedaran Awam (CEPA) di peringkat negeri dan ibu pejabat. Bengkel ini turut dihadiri oleh pegawai daripada KPT, KPM, LESTARI UKM, serta wakil IPT (awam dan swasta) dari seluruh negara termasuk daripada Institut Pendidikan Guru Malaysia (IPGM), Politeknik dan Kolej Komuniti. Bengkel ini telah dirasmikan oleh Puan Hajah Azuri Azizah binti Haji Saedon, Pengarah Bahagian Komunikasi Strategik, JAS.

Sebagai pelengkap kepada sesi bengkel ini, peserta turut dibawa melawat Universiti Teknikal Malaysia Melaka (UTeM), Durian Tunggal, Melaka pada 26 September 2024 untuk melihat secara langsung amalan kelestarian yang telah diterapkan di kampus tersebut. Lawatan ini memberi peluang kepada peserta untuk memahami pendekatan holistik UTeM dalam menerapkan konsep kampus lestari, termasuk pengurusan tenaga, pengurangan sisa dan inisiatif hijau yang dilaksanakan. JAS amat menghargai kesudian pihak pengurusan UTeM dalam berkongsi pengalaman serta memberikan inspirasi kepada IPT lain dalam usaha memperkukuh agenda kelestarian alam sekitar.

JAS, melalui Kementerian Sumber Asli dan Kelestarian Alam (NRES), sedang menyusun kerjasama strategik bersama KPT dan KPM bagi memastikan IPT di Malaysia menjadi pemangkin utama dalam usaha kelestarian alam sekitar negara. Diharapkan Program KLAAS bakal menjadi satu pencetus perubahan dalam memperkasa budaya kelestarian IPT, sekali gus menyumbang kepada matlamat pembangunan mampan negara.

held on 20 – 21 May 2024, at Mardhiyyah Hotel & Suites, Shah Alam. This workshop was organized by the Environmental Education Section, Strategic Communications Division, DOE with participations from officials of Ministry of Higher Education (KPT), Ministry of Education (KPM), LESTARI UKM, and representatives from selected Higher Education Institutions (HEI) nationwide. The session successfully outlined several key outcomes, including:

- Gathering feedback for improving the KLAAS Guidelines and Assessment Manual
- Strengthening the role of DOE in managing KLAAS at the IPT level
- Ensuring continuous dissemination of environmental sustainability awareness among stakeholders.

Following this, the KLAAS Implementation Mechanism Workshop was held on 24 – 26 September 2024 at Holiday Inn, Melaka with the participation of DOE officers overseeing Communication, Education, and Public Awareness (CEPA) programmes at the state and headquarters level. The workshop was also attended by officials from MoHE, MOE, LESTARI UKM, as well as representatives from public and private HEIs, including the Malaysian Institute of Teacher Education (IPGM), Polytechnics, and Community Colleges. The workshop was officiated by Puan Hajah Azuri Azizah binti Haji Saedon, Director of the Strategic Communications Division, DOE.

As a complement to this workshop, participants visited Universiti Teknikal Malaysia Melaka (UTeM), Durian Tunggal, Melaka, on 26 September 2024, to observe sustainability practices implemented on campus. This visit provided participants with first-hand insights into UTeM's holistic approach to sustainable campus development, including energy management, waste reduction, and green initiatives. DOE appreciated UTeM's willingness to share their experiences, serving as an inspiration for other IPTs in advancing the environmental sustainability agenda.

Through the Ministry of Natural Resources and Environmental Sustainability (NRES), DOE is currently establishing a strategic partnership with KPT and KPM to ensure that higher education institutions in Malaysia play a key role in advancing national environmental sustainability efforts. It is hoped that the KLAAS Programme will serve as a catalyst for change, strengthening the sustainability culture within IPTs and contributing to the country's sustainable development goals.



▲ Perasmian Bengkel Libat Urus di Mardhiyyah Hotel & Suites, Shah Alam oleh Puan Hajah Mashitah binti Darus, Timbalan Ketua Pengarah (Pembangunan) JAS / The Opening of the Engagement Workshop at Mardhiyyah Hotel & Suites, Shah Alam by Mrs. Hajah Mashitah binti Darus, Deputy Director General (Development), DOE



▲ Para Peserta Bengkel Libat Urus di Mardhiyyah Hotel & Suites, Shah Alam / The Participants of the Engagement Workshop at Mardhiyyah Hotel & Suites, Shah Alam



▲ Perbincangan Kumpulan Di Antara Peserta Bengkel di Holiday Inn, Melaka / Group Discussion among Workshop Participants at Holiday Inn, Melaka



▲ Pembentangan oleh LESTARI UKM di dalam Bengkel di Holiday Inn, Melaka / Presentation by the LESTARI UKM in Workshop at Holiday Inn, Melaka

LAWATAN MAHASISWA INSTITUSI PENDIDIKAN TINGGI KE JABATAN ALAM SEKITAR IBU PEJABAT PADA TAHUN 2024

Jabatan Alam Sekitar Ibu Pejabat telah menerima kunjungan daripada mahasiswa Program Sarjana Kesihatan Awam (Master of Public Health) Universiti Teknologi MARA (UiTM) Sungai Buloh dan mahasiswa jurusan Ijazah Sarjana Muda Perguruan (PPISMP) TESL daripada Institut Pendidikan Guru Kampus Pendidikan Islam (IPG KPI), Bangi pada 28 November 2024.

Kunjungan daripada UiTM dan IPG KPI ini telah disambut oleh Puan Hajah Azuri Azizah binti Haji Saedon, Pengarah Bahagian Komunikasi Strategik, JAS. Lawatan ini merupakan satu peluang bagi mahasiswa memahami peranan dan tanggungjawab JAS dalam menjaga dan memulihara serta memelihara alam sekitar. Sebagai agen utama dalam melaksanakan dasar-dasar alam sekitar negara, JAS merasakan lawatan ini akan memberikan pandangan yang berbeza mengenai cabaran dan usaha dalam pemuliharaan alam sekitar yang kita cintai.

UNIVERSITY STUDENTS' VISIT TO THE DEPARTMENT OF ENVIRONMENT HEADQUARTERS IN 2024

Department of Environment Headquarters received a visit from students of the Master of Public Health programme at Universiti Teknologi MARA (UiTM) Sungai Buloh and students of the Bachelor of Teaching (PPISMP) in TESL from the Institute of Teacher Education, Islamic Education Campus (IPG KPI), Bangi on 28 November 2024.

The visit from UiTM and IPG KPI was warmly welcomed by Puan Hajah Azuri Azizah binti Haji Saedon, Director of the Strategic Communications Division, DOE. This visit provided students with the opportunity to understand the role and responsibilities of DOE in protecting, restoring, and preserving the environment. As a key agency in implementing national environmental policies, DOE believes that this visit offers students a unique perspective on the challenges and efforts in environmental conservation that are crucial for the future.



▲ Mahasiswa Melawat ke Pusat Data Alam Sekitar (EDC)
The Students Visited the Environmental Data Center (EDC)



▲ Mahasiswa Bergambar Foto Berkumpulan bersama Pegawai JAS / Students take a Group Photo with DOE Officers



▲ Mahasiswa IPG KPI sedang Mendengar Taklimat Enviro-Library
The Students of IPG KPI are Attending a Briefing of Enviro-Library

SEKSYEN MEDIA, BAHAGIAN KOMUNIKASI STRATEGIK, JABATAN ALAM SEKITAR

Seksyen Media bertanggungjawab untuk menyebarluas perancangan, pelaksanaan dan pencapaian Jabatan merangkumi aktiviti kesedaran alam sekitar, pemantauan alam sekitar, pembangunan serta penguatkusaan. Secara umum, fungsi dan tugas adalah meliputi:

MEDIA SECTION, STRATEGIC COMMUNICATION DIVISION, DEPARTMENT OF ENVIRONMENT

The Media Section is responsible for disseminating information about the Department's plans, initiatives, and achievements. This includes activities related to environmental awareness, monitoring, development, and enforcement. Its main functions and duties are:



MENYEDIAKAN HEBAHAN:
Menyediakan bahan hebahan berbentuk poster, infografik, banner, bunting dan video bertujuan untuk menyampaikan informasi dan program berkaitan Jabatan kepada orang awam.

PROVIDING MATERIALS:
Content Dissemination: Creating posters, infographics, banners, buntings, and videos to inform the public about the Department's programs and initiatives.



MENJAWAB PERTANYAAN MEDIA SOSIAL :
Menyelaras dan juga menjawab pertanyaan dan permintaan maklumat dari orang awam melalui media sosial dan system e-aduan.

SOCIAL MEDIA INQUIRIES:
Coordinating and responding to public inquiries and requests for information via social media and the e-complaint system.



MENGURUSKAN MEDIA SOSIAL:
Menyelaras dan menguruskan akaun media sosial Jabatan seperti Facebook, Instagram, Youtube dan X (Twitter). Seksyen ini menyelaras , menyedia dan memantau semua kandungan, berinteraksi dengan pengikut, dan memantau maklum balas orang ramai terhadap Jabatan.

SOCIAL MEDIA MANAGEMENT:
Managing the Department's social media accounts, including Facebook, Instagram, YouTube, and X (formerly Twitter). This involves coordinating, preparing, and monitoring content, engaging with followers, and monitoring public feedback.



MELAKSANAKAN PENILAIAN DAN ANALISIS:
Menilai keberkesanan dan menganalisis media sosial, maklumbalas orang ramai, dan prestasi media sosial untuk memperbaiki strategi pada masa akan datang.

EVALUATION AND ANALYSIS:
Assessing the effectiveness of social media, analyzing public feedback, and evaluating social media performance to improve future strategies.



MENYEDIAKAN BANTUAN TEKNIKAL ACARA DAN PROGRAM:
Membantu Jabatan dalam menyediakan alatan dan kemahiran teknikal dalam acara dan program anjuran Jabatan.

EVENT TECHNICAL ASSISTANCE:
Providing technical equipment and skills to support the Department's events and programs.



MEMANTAU LIPUTAN MEDIA:
Memantau liputan media tentang Jabatan untuk mengetahui pendapat orang ramai dan bertindak balas jika diperlukan.

MANAGING SOCIAL MEDIA:
Monitoring media coverage of the Department to gauge public opinion and respond as needed.

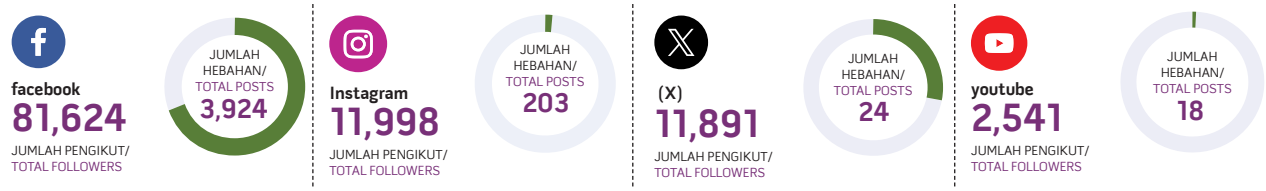
Pada tahun 2024 Seksyen Media telah melaksanakan 228 hebahan media sosial, menyediakan 573 grafik , menghasilkan 41 video, mengendalikan 6 program bicara santai dan 52 siaran langsung di media sosial, Zoom dan Google Meet.

Pada tahun 2024 juga, Jabatan Alam Sekitar telah melaksanakan pelbagai aktiviti dan hebahan di media sosial, meningkatkan interaksi bersama orang awam dan meningkatkan kesedaran mengenai program dan matlamat Jabatan. Berikut adalah pencapaian media sosial Jabatan untuk tahun 2024:

In 2024, the Media Section executed 228 social media posts, created 573 graphics, produced 41 videos, and handled 6 informal discussion programs and 52 live broadcasts on social media, Zoom, and Google Meet.

The Department of Environment also used a variety of social media activities and outreach efforts in 2024 to increase public engagement and raise awareness about its programs and goals. Here are the social media achievements for 2024:

PENCAPAIAN MEDIA SOSIAL JABATAN BAGI TAHUN 2023 / DEPARTMENT'S SOCIAL MEDIA ACHIEVEMENTS FOR 2023



Dari tahun ke tahun, terdapat peningkatan interaksi pengguna yang signifikan, dengan jumlah *like*, komen dan *share* yang meningkat setiap tahun.

Sepanjang tahun 2023, boleh disimpulkan bahawa aktiviti di media sosial Jabatan Alam Sekitar telah berjalan dengan baik dan telah memberi impak yang positif kepada orang awam.

There has been a significant increase in user interaction from year to year, with the number of likes, comments, and shares increasing each year.

Throughout 2023, it can be concluded that the activities on the Department of Environment's social media platforms have been successful and have had a positive impact on the public.

PROGRAM RAKAN ALAM SEKITAR (RAS)

Program Rakan Alam Sekitar (RAS) terus dilaksanakan untuk membudayakan gaya hidup lestari dalam kehidupan seharian di kalangan ahli RAS bagi meningkatkan kesedaran dan komitmen mereka dalam melestarikan alam sekitar di Malaysia. Sehingga kini, seramai 197,247 individu telah menyatakan komitmen melestarikan alam sekitar dengan mendaftar sebagai ahli RAS. Pelaksanaan aktiviti kelestarian alam sekitar yang dilaksanakan sepanjang 2024 adalah pembersihan pantai, penanaman pokok, kayuhan hijau dan enviro-hiking.

FRIENDS OF THE ENVIRONMENT (RAS) PROGRAMME

The Friends of the Environment (RAS) Programme continues to be implemented to cultivate a sustainable lifestyle in daily life among RAS members to increase their awareness and commitment in preserving the environment in Malaysia. To date, a total of 197,247 individuals have expressed their commitment to preserving the environment by registering as RAS members. The implementation of environmental sustainability activities carried out throughout 2024 are beach cleaning, tree planting, green cycling, and enviro-hiking.





▲ Aktiviti Pembersihan Pantai di Pantai Morib, Selangor dengan Kerjasama Strategik Universiti Teknologi MARA Selangor – Kampus Dengkil / Beach Cleaning Activity at Morib Beach, Selangor with Strategic Collaboration with Universiti Teknologi MARA Selangor – Dengkil Campus




▲ Aktiviti Gotong Royong bersama Komuniti di Kampung Linggi, Negeri Sembilan
Clean-up Activities with the Community in Kampung Linggi, Negeri Sembilan




▲ Aktiviti Penanaman Pokok Bakau di Mangrove Point – Selangor Maritime Gateway, Pelabuhan Klang, Selangor dengan Kerjasama Strategik Project Delivery & Technology (PD&T) PETRONAS / Mangrove Tree Planting Activities at Mangrove Point – Selangor Maritime Gateway, Port Klang, Selangor with Strategic Collaboration with Project Delivery & Technology (PD&T) PETRONAS





▲ Aktiviti Enviro Hiking di Bukit Wawasan, Puchong, Selangor dengan Kerjasama Strategik bersama Matsuda Sangyo (Malaysia) Sdn. Bhd. / Enviro Hiking Activities at Bukit Wawasan, Puchong, Selangor with Strategic Collaboration with Matsuda Sangyo (Malaysia) Sdn. Bhd.





▲ Aktiviti Enviro cycling di Paya Indah Wetland, Selangor dengan Kerjasama Strategik Persatuan Rakan Alam Sekitar (RAS) UiTM Student Chapter dan Jabatan Perlindungan Hidupan Liar dan Taman Negara (PERHILITAN) Semenanjung Malaysia
Enviro Cycling Activities at Paya Indah Wetlands, Selangor with Strategic Collaboration with RAS UiTM Student Chapter and Department of Wildlife and National Parks (PERHILITAN) Peninsular Malaysia





PAMERAN ALAM SEKITAR

JAS terus komited dalam menyebarluas dan menyampaikan informasi kelestarian alam sekitar melalui pelbagai platform termasuk pameran alam sekitar. Sepanjang 2024, JAS Ibu Pejabat telah menyertai sebanyak 22 pameran alam sekitar yang dianjurkan oleh JAS serta jemputan yang diterima daripada rakan strategik dan agensi lain.

ENVIRONMENTAL EXHIBITIONS

DOE continues to be committed to disseminating and delivering environmental sustainability information through various platforms including environmental exhibitions. Throughout 2024, DOE Headquarters participated in 22 environmental exhibitions organized by DOE as well as invitations received from strategic partners and other agencies.



◀ Pameran sempena Minggu Keselamatan, Kesihatan dan Alam Sekitar Peringkat TNB GENCO di Tenaga Nasional Berhad (TNB) Bangsar
Exhibition in conjunction with TNB GENCO Safety, Health and Environment Week at Tenaga Nasional Berhad (TNB) Bangsar



▲ Pameran sempena Minggu Keselamatan, Kesihatan dan Alam Sekitar Peringkat TNB GENCO di Tenaga Nasional Berhad (TNB) Bangsar / Exhibition in conjunction with TNB GENCO Safety, Health and Environment Week at Tenaga Nasional Berhad (TNB) Bangsar





▲ Pameran di Reruai Kementerian Sumber Asli dan Kelestarian Alam (NRES) semasa Program Madani Rakyat – Zon Tengah 2024 / Exhibition at the Ministry of Natural Resources and Environmental Sustainability (NRES) Pavilion during the Program Madani Rakyat – Central Zone 2024



▲ Pameran sempena Sambutan Hari Alam Sekitar Negara (HASN) Peringkat Kebangsaan 2024 di Pulau Langkawi, Kedah
Exhibition in conjunction with the Celebration of National Environment Day (HASN) 2024 in Langkawi Island, Kedah







◀ Pameran sempena Sambutan World OSH Day NIOSH 2024 di Menara NIOSH, Bangi / Exhibition in conjunction with the NIOSH World OSH Day 2024 at NIOSH Tower, Bangi



▲ Pameran sempena Hari Kelestarian Universiti Kebangsaan Malaysia (UKM) 2024 di UKM Bangi, Selangor / Exhibition in conjunction with Universiti Kebangsaan Malaysia (UKM) Sustainability Day 2024 at UKM Bangi, Selangor



▲ Pameran sempena Karnival Alam Kita (KAK) 2024 di Taman Tasik Titiwangsa, Kuala Lumpur
Exhibition in conjunction with the Our Nature Carnival (KAK) 2024 at Taman Tasik Titiwangsa, Kuala Lumpur

ANUGERAH LANGKAWI – KELESTARIAN ALAM SEKITAR

Anugerah Langkawi – Kelestarian Alam Sekitar (ALKAS) adalah satu bentuk pengiktirafan oleh Jabatan Alam Sekitar (JAS) kepada individu dan organisasi yang telah memberi sumbangan yang signifikan kepada kelestarian alam sekitar. ALKAS telah dimulakan pada tahun 1991. Penerima ALKAS memperolehi sijil pengiktirafan daripada Duli Yang Maha Mulia Seri Paduka Baginda Yang di-Pertuan Agong, plak penghargaan daripada Yang Berhormat Menteri dan wang tunai sebanyak RM10,000.00.

Pada tahun 2024, Kementerian telah meluluskan kadar baharu ALKAS iaitu sebanyak RM50,000.00 bagi setiap kategori. Sebanyak 39 pencalonan individu dan 89 pencalonan organisasi diterima oleh JAS setelah pencalonan dibuka pada 1 Januari 2024 sehingga 31 Mei 2024. Penilaian Peringkat Pertama ALKAS telah diadakan pada 12 & 13 Jun 2024 di Hotel Mercure, Shah Alam. Penilaian Peringkat Kedua telah diadakan pada 11 Julai & 12 Ogos 2024 yang dipengerusikan oleh YBhg. Dato' Wan Abdul Latiff bin Wan Jaffar, Ketua Pengarah Alam Sekitar.

Jawatankuasa Pemutus telah bersidang pada 1 Oktober 2024 yang telah dipengerusikan oleh YB Nik Nazmi bin Nik Ahmad, Menteri Sumber Asli dan Kelestarian Alam (NRES) dan telah memutuskan penerima ALKAS bagi sesi 2023/2024 seperti berikut:

- Kategori Individu – Puan Jennifer Asing, Guru Cemerlang SM St. Micheal
- Kategori Organisasi – Tenaga Nasional Berhad (TNB)

Majlis penganugerahan ALKAS telah diadakan pada 21 Oktober 2024 di Park Royal Langkawi sempena sambutan Hari Alam Sekitar Negara (HASN) 2024 Peringkat Kebangsaan. Penganugerahan ini telah disempurnakan oleh Duli Yang Teramat Mulia Tengku Sarafudin Badlishah Ibni Al Aminul Karim Sultan Sallehuddin, Raja Muda Kedah. Buku Memoir Anugerah Langkawi – Kelestarian Alam Sekitar juga turut dilancarkan semasa Majlis Perasmian HASN 2024 Peringkat Kebangsaan yang menghimpunkan bibliografi 24 penerima terdahulu ALKAS dan sumbangan tokoh-tokoh ini di dalam melestarikan alam sekitar.

LANGKAWI AWARD – ENVIRONMENTAL SUSTAINABILITY

Anugerah Langkawi – Kelestarian Alam Sekitar (ALKAS) is a form of recognition by the Department of Environment (DOE) to individuals and organizations that have made significant contributions to environmental sustainability. ALKAS was initiated in 1991. Recipients of ALKAS receive a certificate of recognition from His Majesty the Yang di-Pertuan Agong, a plaque of appreciation from the Honourable Minister, and a cash award of RM10,000.00.

In 2024, the Ministry approved a new ALKAS award with amount of RM50,000.00 for each category. A total of 39 individual nominations and 89 organizational nominations were received by DOE after nominations were opened from 1 January 2024 to 31 May 2024. The First Stage of the ALKAS Evaluation was held on 12 & 13 June 2024, at the Mercure Hotel, Shah Alam. The Second Stage Evaluation was held on 11 July & 12 August 2024, chaired by YBhg. Dato' Wan Abdul Latiff bin Wan Jaffar, Director General of the Department of Environment.

The Decision-Making Committee convened on 1 October 2024, chaired by YB Nik Nazmi bin Nik Ahmad, Minister of Natural Resources and Environmental Sustainability (NRES), and decided that the recipients of ALKAS for the 2023/2024 session are as follows:

- Individual Category – Puan Jennifer Asing, Guru Cemerlang at SM St. Michael
- Organization Category – Tenaga Nasional Berhad (TNB)

The ALKAS award ceremony was held on 21 October 2024, at the Park Royal Langkawi in conjunction with the National Environment Day (HASN) 2024 celebration. The award was officiated by His Royal Highness Tengku Sarafudin Badlishah Ibni Al Aminul Karim Sultan Sallehuddin, the Raja Muda of Kedah. The Langkawi Environmental Sustainability Award Memoir book was also launched during the HASN 2024 National Ceremony, which includes the bibliography of 24 previous ALKAS recipients and their contributions to environmental sustainability.



▲ Pelancaran buku Memoir Anugerah Langkawi Kelestarian Alam Sekitar oleh Duli Yang Teramat Mulia Tengku Sarafudin Badlishah Ibni Al Aminul Karim Sultan Sallehuddin, Raja Muda Kedah / Launch of the Langkawi Environmental Sustainability Award Memoir book by His Royal Highness Tengku Sarafudin Badlishah Ibni Al Aminul Karim Sultan Sallehuddin, Raja Muda of Kedah



▲ Penerima Anugerah Langkawi Kelestarian Alam Sekitar Kategori Individu, Puan Jennifer Asing / Recipient of the Langkawi Environmental Sustainability Award Individual Category, Mrs. Jennifer Asing



▲ Penerima Anugerah Langkawi Kelestarian Alam Sekitar Kategori Organisasi, Tenaga Nasional Berhad / Recipient of Langkawi Environmental Sustainability Award Organization Category, Tenaga Nasional Berhad

SAMBUTAN BERTEMAKAN ALAM SEKITAR

Terdapat tiga (3) hari utama bertemakan alam sekitar yang disambut oleh JAS iaitu Hari Bumi, Hari Alam Sekitar Sedunia dan Hari Alam Sekitar Negara (HASN). JAS menggunakan platfom ketiga-tiga hari ini untuk mempromosi dan menganjurkan pelbagai program kesedaran dalam usaha melestarikan alam sekitar kepada orang awam. **Jadual 6.3** merupakan tarikh dan tema sambutan hari bertemakan alam sekitar pada tahun 2024.

Sambutan-sambutan ini bertujuan untuk meningkatkan dan mengukuhkan jalinan kerjasama antara Kementerian, JAS, Kerajaan Negeri dan Rakan Strategik dalam mempromosi kesedaran dan kelestarian alam sekitar di samping pembudayaan gaya hidup lestari di kalangan rakyat Malaysia. Bermula tahun 2020, sambutan secara hibrid telah dilakukan iaitu program dijalankan secara atas talian dan fizikal. Pelaksanaan secara hibrid ini membantu penyebaran secara meluas aktiviti yang dijalankan dengan penggunaan platfom media sosial JAS.

Antara program yang dijalankan sepanjang sambutan bertemakan alam sekitar adalah sesi webinar berkaitan alam sekitar, kayuhan hijau, penanaman pokok, pemberian beg plastik guna semula, pengumpulan buangan elektrikal dan elektronik dan lain-lain lagi. Program-program yang telah dijalankan mengikut hari bertemakan alam sekitar adalah seperti di **Jadual 6.4.** Jangkauan menyeluruh kepada ketiga-tiga program tersebut mencecah 1 juta berikutan aktiviti yang dijalankan adalah meliputi seluruh negara.

HASN diumpamakan sebagai sambutan hari raya bagi sektor alam sekitar di mana ianya diraikan setiap 21 Oktober setiap tahun. Bagi tahun 2024, Negeri Kedah Darul Aman telah dilantik untuk menjadi tuan rumah bagi sambutan HASN Peringkat Kebangsaan. HASN Peringkat Kebangsaan telah disambut di Langkawi, Kedah pada 19 – 21 Oktober 2024. Karnival Lestari Alam Sekitar telah diadakan pada 19 – 20 Oktober 2024 di Dataran Cenang dan dirasmikan oleh YBhg. Datuk Dr. Ching Thoo A/L Kim.

Majlis Perasmian HASN 2024 Peringkat Kebangsaan telah diadakan di Hotel Park Royal dan disempurnakan oleh Duli Yang Teramat Mulia (DYTM) Tengku Sarafudin Badlishah Ibni Al Aminul Karim Sultan Sallehuddin, Raja Muda Kedah. DYTM Raja Muda Kedah juga turut memperkenan menyempurnakan Penganugerahan Anugerah Langkawi – Kelestarian Alam Sekitar (ALKAS), Sekolah Lestari – Anugerah Alam Sekitar (SLAAS) dan Anugerah Media Cakna Alam Sekitar pada majlis tersebut.

ENVIRONMENTALLY THEMED CELEBRATION

There are three (3) main environment-themed days celebrated by DOE, which are Earth Day, World Environment Day and National Environment Day. DOE uses these three platforms to promote and organize various awareness programs on environmental preservation to the public. **Table 6.3** is the date and theme for the environment-themed day celebration in 2024.

These celebrations aim to increase and strengthen the cooperation between the Ministry, DOE, State Government and Strategic Partners in promoting environmental awareness and sustainability in addition to cultivating a sustainable lifestyle among Malaysians. Starting in 2020, a hybrid celebration has been done, i.e. the program is conducted online and physically. This hybrid implementation helps the widespread dissemination of activities carried out with the use of DOE social media platforms.

The activities that have been carried out according to environment-themed days are as in **Table 6.4.** Among the activities carried out throughout the environment-themed celebration are webinar sessions related to the environment, green cycling, tree planting, giving reusable plastic bags, collecting electrical and electronic waste, and others. The overall outreach of the three programs reached 1 million following the activities carried out covering the entire country.

National Environment Day (HASN) is a symbol to hari raya celebration for the environment sector where it is celebrated on 21 October every year. For the year 2024, the State of Kedah Darul has been appointed to host the National Level HASN celebration. The National Level HASN was celebrated in Langkawi, Kedah on 19 – 21 October 2024. Karnival Lestari Alam was held on 19 – 20 October 2024 at Dataran Cenang and was officiated by YBhg. Datuk Dr. Ching Thoo A/L Kim.

The National Level HASN 2024 was held at the Park Royal Hotel and officiated by His Royal Highness (HRH) Tengku Sarafudin Badlishah Ibni Al Aminul Karim Sultan Sallehuddin, Raja Muda of Kedah. HRH Raja Muda of Kedah also officiated the Anugerah Langkawi – Kelestarian Alam Sekitar (ALKAS), Sekolah Lestari – Anugerah Alam Sekitar (SLAAS) dan Anugerah Media Cakna Alam Sekitar at the event.





Program Enviro Hunt bersama Pelajar IPT dan Agensi Kerajaan
Enviro Hunt Program with IPT Students and Government Agencies





Program Enviro Cycling Anjuran bersama RAS UiTM sempena Hari Bumi 2024
Enviro Cycling Program Organized with RAS UiTM in conjunction with Earth Day 2024





Program Mewarna Batik dengan Tema "Hentikan Pembakaran Terbuka"
Batik Coloring program with the Theme "Stop Open Burning"





Program Mencanting Batik dan Dye Tie sempena Hari Alam Sekitar Negara 2024 di Kompleks Kraf Langkawi
Batik and Tie Dye Painting Program in conjunction with National Environment Day 2024 at the Langkawi Craft Complex





Program Penghijauan bersama YTL dan Jabatan Perhutanan Semenanjung Malaysia / Joint greening program between YTL and the Peninsular Malaysia Forestry Department





▲ Pemenang Pertandingan Bicara Berirama & Choral Speaking sempena Hari Alam Sekitar Sedunia 2024
Winners of the Rhythmic Speaking & Choral Speaking Competition in Commemoration of World Environment Day 2024





▲ Persembahan Johan Bicara Berirama, SK Raja Perempuan, Ipoh, Perak semasa Majlis Perasmian Karnival Lestari Alam
Performance by Winner of Rhythmic speaking, SK Raja Perempuan, Ipoh, Perak during the Opening Ceremony of the Lestari Alam Carnival



▲ Program Ekspedisi Paya Bakau dan Plastic Busters di Pulau Tuba, Langkawi sempena Hari Alam Sekitar Negara 2024
Mangrove Swamp Expedition and Plastic Busters Program in Tuba Island, Langkawi in conjunction with National Environment Day 2024



▲ Program Enviro Hiking sempena Hari Alam Sekitar Sedunia 2024 / Enviro Hiking Program in conjunction with World Environment Day 2024

Jadual 6.3: Tarikh dan Tema Sambutan Bertemakan Alam Sekitar 2024
Table 6.3: Dates and Themes of the 2024 Environmental Celebration

SAMBUTAN / CELEBRATION	TARIKH / DATE	TEMA / THEME
Hari Bumi / Earth Day	22 April 2024	Planet vs Plastik / Planet vs Plastics
Hari Alam Sekitar Sedunia / World Environment Day	5 Jun 2024 / 5th June 2024	Pemulihan Tanah, Penggurunan dan Ketahanan Kemarau / Land Restoration, Desertification and Drought Resilience
Hari Alam Sekitar Negara / National Environment Day	21 Oktober 2024 / 21st October 2024	Alam Sekitar Tanggungjawab Bersama / Environment is Our Shared Responsibility

Jadual 6.4 : Program Sambutan Bertemakan Alam Sekitar 2024
Table 6.4: Environmentally Themed Celebration Program 2024

SAMBUTAN / CELEBRATION	PROGRAM / PROGRAMME
Hari Bumi / Earth Day	i. Enviro Cycling di Wetland Putrajaya / Enviro Cycling at Putrajaya Wetland ii. Enviro Hiking di Bukit Tunggul / Enviro Hiking at Tunggul Hill iii. Kempen hindari plastik sekali guna / Campaign to avoid single-use plastic iv. Bicara Eksekutif "Wanita Pemacu Kelestarian Alam" / Executive Speech "Women as Drivers of Environmental Sustainability" v. Bicara Eksekutif "Sedekad Peraturan Udara Bersih: Pemantauan dan Analisis" / Executive Talk "A Decade of Clean Air Regulations: Monitoring and Analysis" vi. Simposium 50 Tahun Jubli Emas AKAS 1974: Cabaran Mendepani Isu Alam Sekitar" / EQA 1974 50th Golden Jubilee Symposium: Challenges in Addressing Environmental Issues" vii. Hebahan poster Hari Bumi/ Earth Day poster publicity
Hari Alam Sekitar Sedunia World Environment Day	i. Enviro-Hiking Bukit Wawasan / Enviro-Hiking Bukit Wawasan ii. Program Kesedaran Alam Sekitar di Sekolah Kebangsaan Jalan Empat, Bangi / Environmental Awareness Program at Sekolah Kebangsaan Jalan Empat, Bangi iii. Hebahan poster "Petikan Alam Sekitar" / Poster Publicity "Environmental Quotes" iv. Bicara Eksekutif "Pendekatan Baharu Data Analisis: Kaedah Pembelajaran Mesin" / Executive Talk "New Approaches to Data Analysis: Machine Learning Methods" v. Pertandingan Bicara Berirama Alam Sekitar Peringkat Sekolah Rendah & Sekolah Menengah / Elementary & Middle School Level Environmental Rhythmic Speaking Competition vi. Bicara Eksekutif "Pembangunan Lestari Demi Masa Hadapan"/ Executive Speech "Sustainable Development for the Future"
Hari Alam Sekitar Negara National Environment Day	i. Soft Launch Hari Alam Sekitar Negara / Soft Launch of National Environment Day ii. Sesi Temu Bual Awani / Interview Session with Awani iii. Program Ekspedisi Paya Bakau & Plastic Busters / Mangrove Swamp Expedition Program & Plastic Busters iv. Eksplorasi Ekosistem Marin / Marine Ecosystem Exploration v. Program Penanaman Pokok / Tree Planting Program vi. Aktiviti Mewarna Batik Kanak-Kanak & Mencanting Batik / Children's Batik Coloring & Batik Painting Activities



▲ Poster Hari Bumi 2024
Earth Day 2024 Poster



▲ Poster Hari Alam Sekitar Sedunia 2024
World Environment Day 2024 Poster



▲ Poster Hari Alam Sekitar Negara 2024 / National Environment Day 2024 Poster





BAB
CHAPTER
07

PENGURUSAN TEKNOLOGI MAKLUMAT

INFORMATION TECHNOLOGY MANAGEMENT

PENGURUSAN TEKNOLOGI MAKLUMAT
INFORMATION TECHNOLOGY MANAGEMENT

Bahagian Teknologi Maklumat (BTM) bertanggungjawab dalam memacu transformasi digital sistem penyampaian perkhidmatan JAS merangkumi pengurusan komprehensif sistem aplikasi, perkakasan, perisian, dan rangkaian ICT. BTM secara berterusan berusaha meningkatkan kecekapan dan keberkesanan perkhidmatannya dalam pengurusan alam sekitar yang lestari melalui pelbagai inisiatif digital dengan sasaran untuk mencapai hasil yang lebih baik pada tahun 2024 dan antaranya adalah

a. Pembangunan Electronic Scheduled Waste Information System (eSWIS);
b. Inisiatif Sistem myPremis;
c. Projek Naik Taraf Server GIS;
d. Pengubahsuaian Bilik Latihan ICT, JAS Putrajaya; dan
e. Pembangunan Sistem ePejabat.

PEMBANGUNAN ELECTRONIC SCHEDULED WASTE INFORMATION SYSTEM (eSWIS)

Sistem eSWIS merupakan sistem yang digunakan oleh Bahagian Bahan Berbahaya dalam mendapatkan maklumat penghasilan dan pelupusan buangan terjadual daripada premis selaras dengan Peraturan-Peraturan Kualiti Alam Sekeliling (Buangan Terjadual) 2005 dan PPKAS (Premis Yang Ditetapkan) (Kemudahan Pengolahan dan Buangan Terjadual) 1989.

Sistem ini telah mula dibangunkan pada akhir tahun 2023 dan siap sepenuhnya pada tahun 2024. Sistem ini boleh dilayari melalui pautan https://eswisv2.doe.gov.my. Pada tahun 2024 juga, beberapa siri bengkel bagi memuktamadkan kajian keperluan perniagaan dan pengujian sistem telah diadakan. Kajian keperluan perniagaan adalah aktiviti asas yang perlu dilaksanakan untuk memahami halatuju dan objektif organisasi, mengenal pasti keperluan perniagaan dan skop yang perlu diliputi bagi tujuan pembangunan sistem aplikasi. Pengujian sistem pula merupakan aktiviti penting dalam proses pembangunan sistem untuk memastikan sistem disiapkan mengikut spesifikasi yang ditetapkan.

The Information Technology Division (BTM) is responsible for driving the digital transformation of the DOE service delivery systems. This includes the comprehensive management of application systems, hardware, software, and ICT networks. BTM is continuously working to improve the efficiency and effectiveness of its services in sustainable environmental management. It aims to achieve better results by 2024 through various digital initiatives, including:

a. Electronic Scheduled Waste Information System (eSWIS) Development;
b. myPremis System Initiative;
c. GIS Server Upgrade Project;
d. DOE Putrajaya ICT Training Room Renovation; and
e. ePejabat System Development.

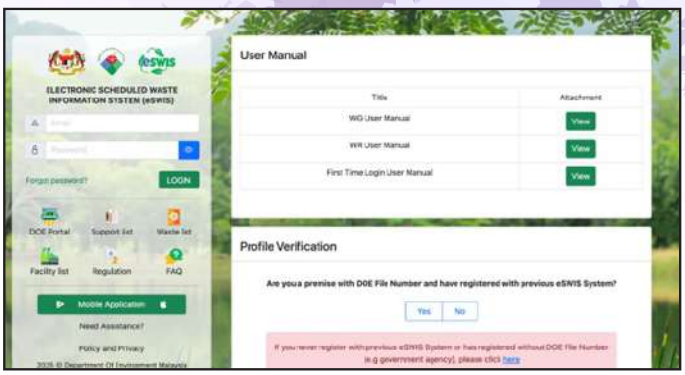
ELECTRONIC SCHEDULED WASTE INFORMATION SYSTEM (ESWIS) DEVELOPMENT

eSWIS is a system used by the Hazardous Substances Division to collect information on the production and disposal of scheduled waste from premises in accordance with the Environmental Quality (Scheduled Waste) Regulations 2005 and Environmental Quality (Prescribed Premises) (Scheduled Wastes Treatment and Disposal Facilities) Order 1989.

The system development has begun in 2023 and has been successfully completed in 2024. The system can be accessed via https://eswisv2.doe.gov.my. Throughout the year 2024, series of business requirement study workshop and system testing workshop had been conducted. The business requirements study is a fundamental activity that needs to be carried out to understand an organization's direction and objectives, and to identify the business requirements and scope for developing an application system. Meanwhile, system testing is an activity that must be implemented to ensure the system is completed according to the specified specifications.



▲ Bengkel Semakan Dokumen Spesifikasi Keperluan Bisnes (BRS) eSWIS / Business Requirements Specification Document Review Workshop for eSWIS



▲ Paparan Muka Hadapan eSWIS
eSWIS Landing Page

INISIATIF SISTEM myPREMIS

Jabatan Alam Sekitar (JAS) mempunyai beberapa inisiatif ICT dalam menjalankan kerja-kerja penguatkuasaan Akta Kualiti Alam Sekeliling 1974 (AKAS 1974) dan antaranya adalah sistem Elektronik Kawalan Alam Sekitar (eKAS).

Sistem eKAS yang telah digunakan sejak tahun 1999 merupakan sistem utama penguatkuasaan JAS berasaskan web yang menjadi pusat pengumpulan data seperti maklumat asas premis dari pelbagai sektor industri yang tertakluk kepada AKAS 1974, beban pencemaran, pengawasan, pelesenan, penguatkuasaan dan tindakan susulan penguatkuasaan serta pengurusan aduan alam sekitar. Versi terkini eKAS v4.0 dibangunkan dengan bahasa pengaturcaraan PHP (Laravel) dan pangkalan data MySQL.

Pada tahun 2019, sistem eKAS telah dibangunkan semula dengan beberapa ciri baharu seperti naik taraf modul sedia ada, penambahan modul baru dan integrasi dengan sistem dalaman dan luar jabatan. Sesi Kajian Keperluan Perniagaan (Business Requirement Specification-BRS) yang dijalankan mendapati terdapat keperluan untuk pelaksanaan pembersihan dan pengemaskinian maklumat asas dan operasi premis dalam Modul SIMPAS. Ini kerana, sistem eKAS hanya boleh diakses oleh pegawai JAS sahaja dan maklumat yang direkodkan dalam sistem ini adalah penting bagi membantu JAS menjalankan penguatkuasaan AKAS 1974 dengan lebih berkesan.

Susulan itu, Mesyuarat Jawatankuasa Teknikal eKAS Bil. 1 Tahun 2019 yang diadakan pada 15 Oktober 2019 telah bersetuju supaya pembekal membangunkan satu (1) borang (form) untuk membolehkan premis mengemas kini maklumat asas dan operasi premis masing-masing. Integrasi sistem myPremis dan eKAS membenarkan maklumat yang dikemas kini dihantar ke sistem eKAS dan disahkan oleh pegawai JAS sebelum disimpan ke dalam

myPREMIS SYSTEM INITIATIVE

The Department of Environment (DOE) has several ICT initiatives in carrying out the enforcement of the Environmental Quality Act 1974 (AKAS 1974)and among these initiatives is the Elektronik Kawalan Alam Sekitar (eKAS) system.

The eKAS system that has been in use since 1999 is the main web-based DOE enforcement system. It is a data collection center for basic information on premises from various industrial sectors that are subject to AKAS 1974, pollution burden, supervision, licensing, enforcement and enforcement follow-up actions, as well as environmental complaint management. The latest version eKAS v4.0 is developed with PHP programming language (Laravel framework) and MySQL database.

In 2019, the eKAS system was redeveloped with several new features such as upgrading existing modules, adding new modules, and integration with internal and external departmental systems. The Business Requirement Specification (BRS) study session that was conducted found that there is a need for the implementation of cleaning and updating the basic information and operation of the premises in the SIMPAS Module. This is because the eKAS system can only be accessed by DOE officials and the information recorded in this system is important to help DOE carry out the enforcement of AKAS 1974 more effectively.

Following that, eKAS Technical Committee Meeting No. 1 Year 2019 held on 15 October 2019 had agreed that suppliers develop one (1) form to enable premises to update the basic information and operations of their respective premises. The integration of the myPremis and eKAS systems allows updated information to be sent to the eKAS system and verified by DOE officials before being stored in the eKAS system database. These

pangkalan data sistem eKAS. Berikut adalah modul-modul yang terdapat dalam sistem myPremis sepertimana **Jadual 7.1.**

are the modules available in the myPremis system as **Table 7.1.**

Jadual 7.1: Modul-Modul yang Terdapat dalam Sistem MyPremis
Table 7.1: Module Available In the MyPremis Systems

BIL NO	NAMA MODUL MODULE NAME	FUNGSI FUNCTION
1.	Maklumat Premis Premises Information	Mengandungi maklumat asas dan operasi premis.Premis boleh mengemas kini maklumat yang akan dihantar ke sistem eKAS untuk disahkan oleh pegawai JAS. Maklumat menjadi rujukan pegawai JAS bagi tujuan penguatkuasaan AKAS 1974 / Contains basic information and premises operations. Premises can update the information that will be sent to the eKAS system to be verified by DOE officials. The information becomes a reference for DOE officials for the purpose of enforcing the 1974 AKAS.
2.	**Permohonan Lesen / License Application**	
	i. Lesen Premis Yang Ditetapkan (PYDT) Kilang Getah Asli Mentah / Designated Premises License (PYDT) Raw Natural Rubber Factory	Permohonan dan pembaharuan lesen oleh PYDT. Modul ini menggantikan penggunaan Sistem BLESS License application and renewal by PYDT. This module replaces the use of the BLESS System.
	ii. Lesen PYDT Kemudahan Pengolahan dan Pelupusan Buangan Terjadual / Scheduled Waste Treatment and Disposal Facility PYDT License	
	iii. Lesen PYDT Kilang Minyak Kelapa Sawit Mentah Crude Palm Oil Mill PYDT License	
	iv. Lesen Pelanggaran Seksyen 22 (1), AKAS 1974 bagi pelepasan Bendasing ke Udara / License Violation of Section 22 (1), AKAS 1974 for the release of foreign matter into the Air	Permohonan Lesen Pelanggaran oleh kilang bagi udara, loji rawatan kumbahan dan tapak pelupusan sisa pepejal. Application for a Violation License by a factory for air, sewage treatment plants and solid waste landfills.
	v. Lesen Pelanggaran Seksyen 25 (1), AKAS 1974 bagi pelepasan Efluen, Kumbahan dan Larut Resapan / License for Violation of Section 25 (1), AKAS 1974 for the discharge of Effluent, Sewage and Leachate	
3.	Notifikasi Efluen / Effluent Notification	Penyeragaman proses kerja bagi pengemukaan dokumen pemberitahuan bertulis dan akuan bertulis sistem pengolahan efluen perindustrian (SPEP) seperti mana kehendak Peraturan-Peraturan Kualiti Alam Sekeliling (Efluen Perindustrian) 2009. / Standardization of work processes for the submission of written notification documents and written declarations of industrial effluent treatment systems (SPEP) as required by the Environmental Quality (Industrial Effluent) Regulations 2009

Pembangunan sistem myPremis yang tidak melibatkan kos tambahan (pembangunan tidak dalam skop tender asal pembangunan sistem eKAS dan telah diserap ke dalam kos sedia ada), telah melalui beberapa penambahbaikan dan penyelenggaraan selepas go-live seperti **Jadual 7.**

The development of the myPremis system, which did not involve additional costs (the development was not within the scope of the original tender for the development of the eKAS system and was absorbed into the existing costs), has undergone several improvements and maintenance after go-live as **Table 7.2.**

BIL NO.	NAMA KONTRAK / NAME OF CONTRACT	TEMPOH / PERIOD
1.	Perjanjian Perkhidmatan Penambahbaikan Modul Pelesenan bagi Sistem eKAS Licensing Module Improvement Service Agreement for the eKAS System	-
2.	Sebut Harga Penyelenggaraan Sistem myPremis di Jabatan Alam Sekitar MyPremis System Maintenance Quote at the Department of Environment	-
3.	Sebut Harga Perkhidmatan Naik Taraf Sistem eKAS untuk Jabatan Alam Sekitar Quotation for eKAS System Upgrade Services for the Department of Environment	1 Ogos 2023 – 28 Feb 2025 1 August 2023 – 28 Feb 2025
4.	Sebut Harga Perkhidmatan Naik Taraf Modul Pelesenan bagi Sistem myPremis Quotation for Licensing Module Upgrade Service for myPremis System	-

Outcome/ Impak / Outcome/ Impact

Penggunaan sistem myPremis memberi impak kepada pihak-pihak berikut:
The use of the myPremis system impacts the following parties:

JAS / DOE

1. Maklumat terkini premis yang lebih tepat dan mudah diperolehi untuk rujukan bagi tujuan penguatkuasaan.
The latest information on premises is more accurate and easy to obtain for reference for enforcement purposes.

Premis / Premise

1. Memudahkan premis mengemas kini maklumat asas dan operasi premis pada bila-bila masa;
Facilitate premises to update basic informationand premises operations at any time;

2. Menyediakan kemudahan permohonan dan pembaharuan lesen; dan
Provide facilities for license applications and renewals; and;

3. Memudahkan pengemukaan dokumen pemberitahuan bertulis dan akuan bertulis Sistem Pengolahan Efluen Perindustrian.
Facilitate the submission of written notification documents and written declarations of SPEP.
Provide facilities for license applications and renewals; and;







Sesi Hands-On Sistem myPremis
myPremis System Hands-On Session

PROJEK NAIK TARAF SERVER GIS

Jabatan Alam Sekitar (JAS) telah memperluaskan penggunaan teknologi dron dalam aktiviti penguatkuasaan dan pengawasan alam sekitar. Imej yang diperoleh hasil penerbangan dron dimuat naik ke dalam Server GIS bagi tujuan analisis di samping pembangunan aplikasi story map dan dashboard untuk pelaporan kes-kes alam sekitar. Penyimpanan data yang berterusan bagaimanapun telah menyebabkan kapasiti storan mencapai tahap maksimum dan menjejaskan keupayaan server berfungsi secara optimum.

Bagi menangani isu ini, Seksyen Geospatial telah melaksanakan projek naik taraf Server Hyperconverged Infrastructure (HCI) pada Mac 2024, melibatkan penambahan satu (1) nod HCI, 36 unit RAM bersaiz 32GB, serta pembaharuan lesen perisian. Pelaksanaan projek ini telah meningkatkan prestasi Server GIS ke tahap optimum, sekali gus memperkukuh keupayaan untuk menampung kapasiti imej dan data spatial berskala besar. Server ini juga kini bersedia menyokong pelaksanaan sistem GeoSpAS JAS dengan penggunaan ArcGIS versi terkini pada masa hadapan.

GIS SERVER UPGRADE PROJECT

The Department of Environment (DOE) has expanded the use of drone technology in its environmental enforcement and surveillance activities. The images obtained from drone flights are uploaded to the GIS Server for analysis purposes, as well as for the development of story map applications and dashboards for reporting environmental cases. However, continuous data storage has resulted in the storage capacity reaching its maximum level, which has compromised the server's optimal functionality.

To address this issue, the Geospatial Section initiated a project to upgrade the Hyperconverged Infrastructure (HCI) Server in March 2024. The upgrade involved the addition of one (1) HCI node, 36 units of 32GB RAM, and the renewal of software licenses. The implementation of this project has significantly improved the GIS Server's performance to an optimal level, thus strengthening its capacity to handle large-scale images and spatial data. The upgraded server is also now prepared to support the future implementation of the DOE's GeoSpAS system using the latest version of ArcGIS.





Kerja-kerja pemasangan komponen server dilaksanakan oleh pembekal / Server component installation work is done by the supplier



Pemasangan server oleh pembekal di bilik server dipantau oleh pegawai Bahagian Teknologi Maklumat JAS / Server installation by the supplier in the server room is monitored by DOE Information Technology Division officer



Pembekal mengkonfigurasi server dengan seliaan pegawai BTM JAS / The supplier configures the server under the supervision of BTM DOE officers

PENGUBAHSUAIAN BILIK LATIHAN ICT JAS PUTRAJAYA

Bilik Latihan ICT, Bahagian Teknologi Maklumat (BTM) telah mula digunakan pada tahun 2006 susulan perpindahan Jabatan Alam Sekitar (JAS) dari Kompleks C4 ke Wisma Sumber Asli. Bilik ini berfungsi sebagai pusat latihan dan pembelajaran berkaitan sistem aplikasi JAS serta pembangunan kemahiran berkaitan ICT bagi warga JAS dan pihak berkepentingan. Penggunaan Bilik Latihan ICT ini adalah penting dalam memastikan penyampaian perkhidmatan JAS kekal relevan serta memenuhi keperluan semasa.

Pada 23 Oktober 2023, BTM telah mengemukakan permohonan peruntukan kepada Bahagian Pentadbiran dan Kewangan (BTW) bagi melaksanakan kerja-kerja pengubahsuaian Bilik Latihan ICT. Keperluan pengubahsuaian ini berpunca daripada keadaan bilik yang tidak lagi memenuhi standard keselesaan dan kecekapan yang diperlukan untuk tujuan pembelajaran serta latihan yang berkesan. Permohonan ini telah diluluskan melalui peruntukan Pembangunan RMK12 Rolling Plan 4 di bawah Projek Penyelenggaraan dan Pembaikan JAS Tahun 2024. Kerja-kerja pengubahsuaian telah dilaksanakan oleh Jabatan Kerja Raya Putrajaya bermula pada 15 Ogos 2024 dan berjaya disiapkan pada 17 November 2024.

Majlis Perasmian Bilik Latihan ICT yang bertempat di Bahagian Teknologi Maklumat, Aras 3, Podium 2 telah disempurnakan oleh YBhg. Dato' Wan Abdul Latiff bin Wan Jaffar, Ketua Pengarah Alam Sekitar Malaysia.. Turut hadir dalam majlis ini ialah YBrs. Tuan Haji Shafiee bin Yasin, Timbalan Ketua Pengarah (Pembangunan), serta beberapa pengarah bahagian seperti Pengarah Bahagian Air Marin, Pengarah Bahagian Bahan Berbahaya, Pengarah BTM, wakil-wakil bahagian dan warga BTM.

Penyediaan Bilik Latihan ICT yang lebih moden dan lengkap akan membolehkan warga JAS dan pihak berkepentingan menjalani latihan dengan lebih berkesan. Selain itu, ia juga membuka peluang untuk meningkatkan kecekapan dalam penggunaan teknologi terkini serta memperkukuhkan kemahiran digital pegawai, sekali gus dapat melahirkan tenaga kerja yang lebih kompeten serta bersedia menghadapi cabaran dunia digital yang semakin berkembang pesat..

RENOVATION OF THE ICT TRAINING ROOM, DOE PUTRAJAYA

The ICT Training Room at the Department of Environment's (DOE) Information Technology Division was first utilized in 2006 following the DOE's relocation from Complex C4 to Wisma Sumber Asli. This room serves as a training and learning centre related to DOE application systems and ICT skills development for DOE personnel and stakeholders. The use of the ICT Training Room is essential to ensure that DOE service delivery remains relevant and meets current needs.

On 23 October 2023, the ICT Division submitted a funding request to the Administration and Finance Division for the renovation of the ICT Training Room. This renovation was necessitated by the room's inability to meet the required standards of comfort and efficiency for effective learning and training. The request was approved under the 13th Malaysia Plan Rolling Plan 4 through the DOE Maintenance and Repair Project for the year 2024. The renovation works were carried out by the Malaysia Public Works Department of Putrajaya, commencing on 15 August 2024, and completed on 17 November 2024.

The ICT Training Room, located at the Information Technology Division, Level 3, Podium 2, was officially inaugurated by YBhg. Dato' Wan Abdul Latiff bin Wan Jaffar, the Director General of Environmental Quality. The event was also attended by YBrs. Tuan Haji Shafiee bin Yasin, Deputy Director-General (Development), as well as several division directors, including the Director of the Marine Water Division, Director of the Hazardous Materials Division, and Director of the ICT Division, representatives from various divisions, and ICT Division personnel.

The provision of a more modern and fully equipped ICT Training Room will enable DOE personnel and stakeholders to undergo training more effectively. Furthermore, it creates opportunities to enhance the proficiency in utilizing the latest technology and to strengthen the digital skills of officers, thereby producing a more competent workforce prepared to face the challenges of a rapidly evolving digital world.



◂ Perasmian Bilik Latihan ICT oleh YBhg. Dato' Wan Abdul Latiff bin Wan Jaffar, Ketua Pengarah Alam Sekitar Malaysia / The ICT Training Room inauguration was officiated by YBhg. Dato' Wan Abdul Latiff bin Wan Jaffar, the Director-General of the Department of Environment Malaysia

PEMBANGUNAN SISTEM ePejabat

Sistem ePejabat merupakan sistem yang dibangunkan bagi memudah cara dan mendigitalkan proses-proses kerja pentadbiran Jabatan yang dilaksanakan secara manual sebelum ini. Sistem ini telah digunakan oleh JAS Ibu Pejabat sejak tahun 2022. Modul utama dalam sistem ini adalah:

i. Modul tempahan bilik mesyuarat dan akaun telesidang;
ii. Modul tempahan kenderaan jabatan;
iii. Modul pinjaman peralatan ICT; dan
iv. Modul aduan kerosakan peralatan ICT.

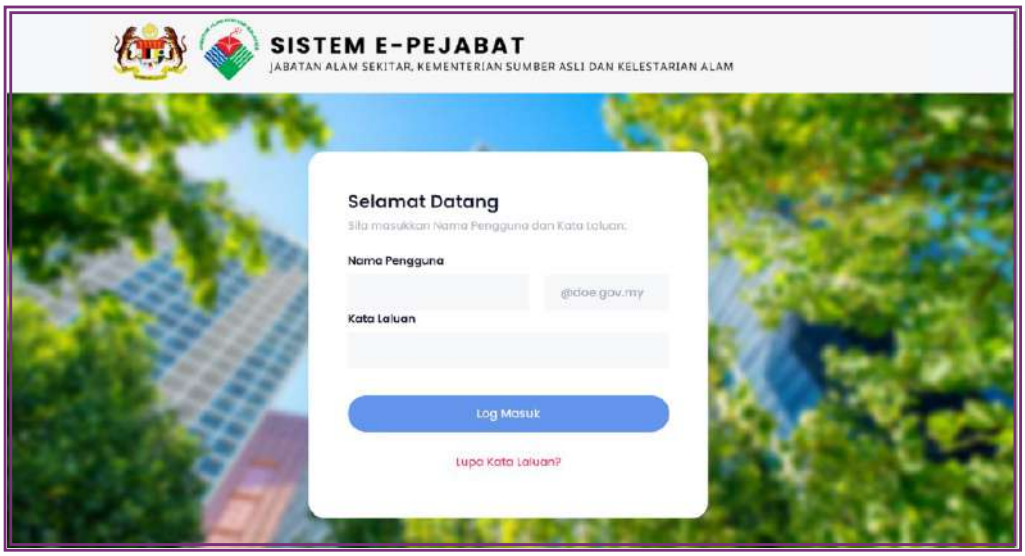
Pada tahun 2024, sistem ini telah ditambah baik selaras dengan perubahan kepada Prosedur Kualiti (PK) Penyelenggaraan ICT MS ISO 9001:2015 Jabatan. Sistem ini boleh dilayari melalui pautan https://epejabat.doe.gov.my/.

DEVELOPMENT OF ePejabat SYSTEM

The ePejabat system is a system developed to facilitate and digitise departmental administrative work processes that were previously carried out manually. This system had been used by DOE Headquarters since 2022. The modules included in the system are:

i. Booking of meeting room and teleconferencing account;
ii. Booking of department's transportation;
iii. Loan of ICT equipment; and
iv. Complaint on ICT equipment damage.

In 2024, this system was improved according to the changes of Prosedur Kualiti (PK) Penyelenggaraan ICT MS ISO 9001:2015. This system is accessible via https://epejabat.doe.gov.my/.



▲ Paparan Muka Hadapan Sistem ePejabat.
ePejabat System Landing Page



BAB
CHAPTER
08

INSTITUT ALAM SEKITAR MALAYSIA (*EiMAS*)

ENVIRONMENT INSTITUTE OF MALAYSIA (*EiMAS*)

INSTITUT ALAM SEKITAR MALAYSIA (E*i*MAS) ENVIRONMENT INSTITUTE OF MALAYSIA (E*i*MAS)

E*i*MAS merupakan Pusat Kecemerlangan Latihan dalam Pengurusan Alam Sekitar di Malaysia yang berperanan dalam meningkatkan kompetensi warga Jabatan Alam Sekitar malah bertanggungjawab dalam melaksanakan pelan latihan berasaskan pengetahuan, praktikal, kompetensi dan pembelajaran berterusan dalam bidang alam sekitar termasuklah kepada agensi-agensi kerajaan yang lain, organisasi, industri tempatan dan juga agensi-agensi alam sekitar antarabangsa.

Jumlah perjawatan E*i*MAS sehingga 31 Disember 2024 adalah 50 perjawatan dengan pengisian sebanyak 47 perjawatan.

PROGRAM LATIHAN E*i*MAS KEPADA PEGAWAI DAN KAKITANGAN JAS 2024

E*i*MAS telah membangunkan program latihan dalam bidang pengurusan alam sekitar dan kawalan pencemaran, serta perhatian telah diberikan kepada pembangunan modal insan yang dapat melindungi dan menguruskan alam sekitar secara menyeluruh seperti dalam **Jadual 8.1.** Sebanyak 76 latihan / kursus telah dilaksanakan dengan jumlah kehadiran seramai 2217 peserta.

E*i*MAS is a Center of Excellence for Training in Environmental Management in Malaysia that plays a role in improving the competency of the Department of Environment and is responsible for implementing training plans based on knowledge, practical, competence, and continuous learning in environmental area including other government agencies, organizations, local industry, as well as international environmental agencies.

The total staff is 50, with 47 posts filled as of 31 December 2024.

E*i*MAS TRAINING PROGRAMME FOR DOE OFFICIALS AND STAFF 2024

E*i*MAS has developed training programs in the field of environmental management and pollution control, with attention given to human capital development capable of protecting and managing the environment holistically, as shown in **Table 8.1.** A total of 76 trainings/ courses were implemented with the attendance of 2271 participants.

Jadual 8.1: Senarai Program Latihan E*i*MAS 2024
Table 8.1: E*i*MAS Training Programme List 2024

BIL. NO.	PENGURUSAN KUALITI AIR WATER QUALITY MANAGEMENT	TARIKH DATE	PESERTA PARTICIPANTS
1.	Kursus IER 2009 - Behind the scene / Course on IER 2009 - Behind the scene	19 - 21 Februari 19 - 21 February	20
2.	Kursus Pemantauan Prestasi Unit Proses (PCP & BP) SPEP / Course on Performance Monitoring of IETS Unit Processes (PCP & BP)	23 - 25 April 23 - 25 April	23
3.	Kursus Pengawasan Kualiti Air Tanah / Course on Groundwater Quality Monitoring	13 -16 Mei 13 -16 May	18
4.	Bengkel Pembangunan Modul Kompetensi Kawalan Pencemaran Air Workshop on the development of Competency Module for Water Pollution Control	24 - 27 Jun 24 - 27 June	16
5.	Kursus Kompetensi Protokol Persampelan, Pengawetan dan Pengendalian Sampel Efluen bagi Tujuan Penguatkuasaan (Siri I) / Course on Competency in The Protocol of Sampling, Preservation and Handling of Effluent Samples for Enforcement Purposes (Series 1)	15 -18 Julai 15 -18 July	20
6.	Bengkel Penyediaan Field Training Report (FTR) bagi Kursus Kompetensi Bidang Kawalan Pencemaran Air / Workshop on the Preparation of Field Training Report (FTR) for the Courses of Water Pollution Control Competency	5-9 Ogos 5 - 9 August	19

Jadual 8.1: Senarai Program Latihan E*i*MAS 2024
Table 8.1: E*i*MAS Training Programme List 2024

BIL. NO.	PENGURUSAN KUALITI AIR WATER QUALITY MANAGEMENT	TARIKH DATE	PESERTA PARTICIPANTS
7.	Kursus Kompetensi Protokol Persampelan, Pengawetan dan Pengendalian Sampel Efluen Bagi Tujuan Penguatkuasaan (Siri II) / Course on Competency in The Protocol of Sampling, Preservation and Handling of Effluent Samples for Enforcement Purposes (Series 2)	26 -29 Ogos 26 -29 August	16
8.	Program Pembangunan Kepakaran Pegawai JAS dalam Bidang Kawalan Pencemaran Air / Expertise Development Programme in Water Pollution Control for DOE Officer	17 - 20 September 17 - 20 September	10
	JUMLAH / TOTAL		**142**

BIL. NO.	PENGURUSAN KUALITI UDARA AIR QUALITY MANAGEMENT	TARIKH DATE	PESERTA PARTICIPANTS
1.	Kursus Pensijilan Penguji Ujian Pelepasan Asap Kenderaan (Diesel & Petrol) untuk Kemudahan yang Diluluskan dan Pengendali / Berkumpulan Bil. 1/2024 Course on Certified Motor Vehicle Emission Tester (Diesel & Petrol) for Approved Facilities and Fleet Operators No. 1/2024	22 - 24 Januari 22 - 24 January	25
2.	Kursus Pensijilan Penguji Ujian Pelepasan Asap Kenderaan Bermotor (Diesel, Petrol & Bunyi Bising) / Course on Certified Motor Vehicle Emission Tester (Diesel, Petrol & Noise) for DOE Officers	26 - 28 Februari 26 - 28 February	17
3.	Latihan Penggunaan Sistem Notifikasi di bawah Peraturan Udara Bersih Siri 1 / Hands-On Clean Air Regulation Notification System (CARNS) Series 1	29 -30 April 29 - 30 April	20
4.	Latihan Penggunaan Sistem Notifikasi di bawah Peraturan Udara Bersih Siri 2 / Hands-On Clean Air Regulation Notification System (CARNS) Series 2	2 - 3 Mei 2 - 3 May	20
5.	Kursus Profesional Alam Sekitar dalam Pemeriksaan Beg Penapis Pengumpul Habuk (CePBFI) / Course on Certified Environmental Professional in Bag Filter Inspection (CePBFI)	13 - 17 Mei 13 - 17 May	16
6.	Kursus Pensijilan Penguji Ujian Pelepasan Asap Kenderaan (Diesel & Petrol) Untuk Kemudahan Yang Diluluskan dan Pengendali Berkumpulan Bil. 2/2024 / Course on Certified Motor Vehicle Emission Tester (Diesel & Petrol) for Approved Facilities and Fleet Operators No. 2/2024	28 - 30 Mei 28 - 30 May	44
7.	Kursus Pensijilan Juruteknik Servis (CSTP) Sektor Penyejukbekuan dan Penyaman Udara Bagi Pegawai JAS / Course on Certified Technician in Refrigerant and Air Condtitioning System (DOE Officer)	4 - 7 Jun 4 - 7 June	28
8.	Kursus Pensampelan Pelepasan Pencemar Dari Cerobong / Course on Stack Emission Sampling	25 - 27 Jun 25 - 27 June	9
9.	Kursus Pensijilan Penguji Ujian Pelepasan Asap Kenderaan (Diesel & Petrol) Untuk Kemudahan Yang Diluluskan dan Pengendali Berkumpulan Bil. 3/2024 Course on Certified Motor Vehicle Emission Tester (Diesel & Petrol) for Approved Facilities and Fleet Operators No. 3/2024	1 - 3 Julai 1 - 3 July	41
10.	Bengkel Penyediaan FTR Kompetensi Udara CEPSI/CEPBFI / Workshop on Field Training Report for Air Pollution Certified Course	5 - 9 Ogos 5 - 9 August	21
11.	Kursus Sistem Pengawasan Udara Berterusan (CEMS) / Course on Continuous Emission Monitoring System (CEMS)	19 - 23 Ogos 19 - 23 August	14
12.	Kursus Pensijilan Penguji Ujian Pelepasan Asap Kenderaan (Diesel & Petrol) Untuk Kemudahan Yang Diluluskan dan Pengendali Berkumpulan Bil. 4/2024 Course on Certified Motor Vehicle Emission Tester (Diesel & Petrol) for Approved Facilities and Fleet Operators No. 4/2024	3 - 5 September 3 - 5 September	32
13.	Kursus Profesional Alam Sekitar dalam Pemeriksaan Penggahar (CePSI) Course on Certified Environmental Professional in Scrubber Inspection (CePSI)	23 - 27 September 23 -27 September	13
14.	Bengkel Pengukuhan Modul Kursus Kompetensi Electrostatic Precipitator (ESP) Workshop on Modul Strengthening Course on Certified Electrostatic Precipitator	9 Oktober 9 October	10
15.	Kursus Atas Talian: Ambient Noise Measurement Online Course: Ambient Noise Measurement	17 Oktober 17 October	92
16.	Program Kepakaran Pegawai: Asian Aerosol Conference / Expertise Development Programme on Air Pollution Control for DOE Officer	3 -7 November 3 - 7 November	10
	JUMLAH / TOTAL		**412**

Jadual 8.1: Senarai Program Latihan E*i*MAS 2024
Table 8.1: E*i*MAS Training Programme List 2024

BIL. NO.	PENGURUSAN BUANGAN TERJADUAL SCHEDULED WASTE MANAGEMENT	TARIKH DATE	PESERTA PARTICIPANTS
1.	Kursus Pengurusan Keselamatan & Kesihatan Pekerjaan Untuk Pegawai JAS Course on Occupational Safety & Health Management for DOE Officers	19 - 23 Februari 19 - 23 February	19
2.	Kursus Pensijilan Protokol Persampelan Buangan Terjadual (CePSWaSP) Course on Certified Person in Scheduled Waste Sampling Protocol (CePSWaSP)	6 - 9 Mei 6 - 9 May	18
3.	Kursus Pensijilan Profesional Alam Sekitar dalam Pemeriksaan Buangan Terjadual (CePSWI) Siri 1 / Certified Environmental Professional in Scheduled Waste Inspection (CePSWI) Series 1	25 - 30 Ogos 25 - 30 August	46
4.	Kursus Pengenalan kepada Fungsi Baharu Sistem MyEHS 2.0 Course on Introduction to the New Functions of the MyEHS 2.0 System	28 Ogos 28 August	22
5.	Kursus Identifikasi dan Klasifikasi Buangan Terjadual Course on Identification and Classification of Scheduled Waste	19 - 22 Ogos 19 - 22 August	22
6.	Kursus Pensijilan Profesional Alam Sekitar dalam Pemeriksaan Buangan Terjadual (CePSWI) Siri 2 / Certified Environmental Professional in Scheduled Waste Inspection (CePSWI) Series 2	22 - 27 September 22 - 27 September	23
7.	Kursus Berkaitan Keselamatan Dan Kesihatan Pekerjaan Pegawai JAS - Pengenalpastian Hazard (Bahaya), Penaksiran Risiko dan Kawalan Risiko (HIRARC) / Course on Occupational Safety & Health Management for DOE Officers of Hazard Identification, Risk Assessment, and Risk Control (HIRARC)	23 - 26 September 23 - 26 September	30
8.	Bengkel Penyediaan Field Training Report (FTR) CePSWI / Preparation Workshop on CePSWI Field Training Report (FTR)	3 - 8 November 3 - 8 November	30
JUMLAH / TOTAL			**210**

BIL. NO.	PERUNDANGAN DAN PENGUATKUASAAN ALAM SEKITAR ENVIRONMENTAL LEGISLATION AND ENFORCEMENT	TARIKH DATE	PESERTA PARTICIPANTS
1.	Kursus Teknik Pemeriksaan Saksi bagi PO & IO JAS dengan Kerjasama ILKAP / Course on Witness Examination Techniques for DOE PO & IO in Collaboration with ILKAP	15 - 19 Januari 15 - 19 January	25
2.	Kursus Pengenalan JAS kepada Anggota APM (TTT) / Course on Introduction of DOE for APM (TTT)	13 - 15 Feb 13 - 15 Feb	40
3.	Kursus Pengendalian Keterangan Gambar Digital & Praktikal Fotografi Penyiasatan / Course in Digital Image Evidence Management and Practical Investigative Photography	22 - 24 April 22 - 24 April	30
4.	Pematuhan Terhadap AKAS 1974 - Atas Talian / EQA Compliance 1974 - Online	21 Mei 21 Mei	31
5.	Kursus Penyiasatan & Penguatkuasaan Pembakaran Terbuka / Course on Investigation & Enforcement of Open Burning	11 - 13 Jun 11 - 13 June	24
6.	Kursus Pemerkasaan Auditor MS ISO 9001:2015 / Course on Auditor Empowerment MS ISO 9001:2015	10 - 13 Jun 10 - 13 Jun	38
7.	Kursus Kuatkuasa AKAS (Pindaan 2024): Cabaran & Perlaksanaan Course on EQA (Amendment 2024): Challenges & Implementation	4 Julai 4 July	300
8.	Kursus Penyediaan Kertas Siasatan / Course on Investigation Paper	29 Julai - 1 Ogos 27 July - 1 August	18
9.	Kursus Pemahaman dan Kemahiran Tangkapan / Course on Comprehension and Skill in Arrest	2 - 6 September 2 - 6 September	18
10.	Kursus Penguatkuasaan Praktikal / Course on Practical Enforcement	23 - 26	22
11.	Kursus Tindak Balas Kawalan dan Pembersihan Tumpahan Minyak di Laut Course on Marine Oil Spill Response and Cleanup	7 - 10 Oktober 7 - 10 October	14
JUMLAH / TOTAL			**569**

Jadual 8.1: Senarai Program Latihan EiMAS 2024
Table 8.1: EiMAS Training Programme List 2024

BIL. NO.	PENGURUSAN ALAM SEKITAR DAN KESAN KEPADA ALAM SEKITAR ENVIRONMENTAL MANAGEMENT AND ENVIRONMENTAL IMPACT ASSESSMENT	TARIKH DATE	PESERTA PARTICIPANTS
1.	Kursus Prosedur Penilaian Laporan Kesan Kepada Alam Sekeliling (EIA) Environmental Impact Assessment (EIA) Report Assessment Procedure Course	19 - 22 Februari 9 - 12 September 19 - 22 February 9 - 12 September	12 11
2.	Kursus Langkah Pencegahan & Kawalan Pencemaran daripada Aktiviti Gangguan Tanah (LDP2M2) / Course on Land Disturbing, Pollution Prevention & Mitigation Measure (LDP2M2)	4 - 8 Mei 1 - 4 Julai 4 - 8 May 1 - 8 July	19 10
3.	Kursus Pensijilan Profesional Pegawai Alam Sekitar dalam Projek EIA (CePEOEIA) / Course on Certified Professional Environmental Officer in EIA Projects (CePEOEIA)	27 - 31 Mei 27 - 31 May	25
4.	Kursus Pemodelan Alam Sekitar – Kualiti Udara / Course on Environmental Modelling – Air Quality	22 - 25 Julai 22 - 25 July	15
5.	Kursus Hands-On Pemeriksaan Syarat EIA Badan Air / Course on Hands-On EIA Conditions of Approval Inspection for Water Bodies	21 - 28 September 21 – 28 September	14
JUMLAH / TOTAL			**106**

BIL. NO.	PENGURUSAN KUALITI QUALITY MANAGEMENT	TARIKH DATE	PESERTA PARTICIPANTS
1.	Kursus Pengurusan dan Kepimpinan Gred C48 - C52 / Course on Management and Leadership Grade C48-C52	29 - 31Januari 29 - 31 January	38
2.	Kursus Pembentukan Insan Cemerlang dan Kerja Berpasukan - Zon Borneo Course on Individual Excellence & Teamwork – Borneo Zone	27 - 29 Februari 27 - 29 February	30
3.	Kursus Siasatan Aduan Integriti Siri 2 / Course on Integrity Complaint Investigation Series 2	5 - 7 Februari 5 - 7 February	30
4.	Ceramah Kerohanian "Menjadi Pekerja Yang Magical & Miracle" oleh Penceramah Selebriti / Spiritual Talk "Becoming A Magical & Miracle Worker" by Celebrity Speaker	19 Mac 19 March	166
5.	Seminar Pengurusan Kewangan: "Urus Hutang, Hati Girang, Kerja Tenang" Financial Management Seminar: "Manage Debt, Be Happy, Work Calmly"	20 Mei 20 May	185
6.	Kursus Pengurusan dan Kepimpinan Gred C44 – The Leader in You 2.0 Course on Management and Leadership - The Leader in You 2.0	10 - 12 Jun 10 - 12June	25
7.	Kursus Train The Trainer (TTT) / Train The Trainer (TTT) Course	24 - 28 Jun 24 - 28June	20
8.	Kursus Asas Pegawai Baharu JAS 2024 / Induction Course for DOE Officer 2024	1 - 26 Julai 1 - 26 July	24
9.	Bengkel Penyediaan Plan Strategik EiMAS 2025 – 2030 / Workshop on Preparation of EiMAS Strategic Plan 2025 - 2030	12 - 16 Ogos 12 - 16 August	22
10.	Kursus Pengurusan & Kepimpinan Gred C48 - C52 – High Performance Leadership Course on Management and Leadership Grade C48-C52 - High Performance Leadership	9 - 13 September 9 - 13 September	19
11.	Kursus Perolehan / Course on Procurement	4 - 6 September 4 - 6 September	41
12.	Kursus Editorial Kertas Cadangan Penyusunan Semula dan Pengukuhan Perjawatan JAS / Course on Editorial of Proposal for Restructuring and Strengthening of DOE Employment	14 - 16 September 14 - 16 September	21

Jadual 8.1: Senarai Program Latihan EiMAS 2024
Table 8.1: EiMAS Training Programme List 2024

BIL. NO.	PENGURUSAN KUALITI QUALITY MANAGEMENT	TARIKH DATE	PESERTA PARTICIPANTS
13.	Kursus Asas Kawad Siri 1 Course on Basic Marching Series	30 September - 4 Oktober 30 September - 4 Oktober	24
14.	Kursus Asas Kawad Siri 2 / Course on Basic Marching Series 2	7 – 11 Oktober 7 - 11 October	28
15.	Bengkel Kajian Training Needs Analysis (TNA) dan Pelan Operasi Latihan (POL) untuk Tahun 2025 / Workshop on Training Needs Analysis (TNA) and Training Operation Plan (POL) for the year 2025	22 – 24 Oktober 22 - 24 October	23
16.	Kursus Protokol Pengurusan Majlis dan Etiket Sosial / Course on Protocol in Event Management and Social Etiquette	6 – 8 November 6 - 8 November	28
17.	Kursus Integriti - Seminar Pemerkasaan Psikologi dan Kerohanian dalam Pembangunan Modal Insan ke Arah Membentuk Pegawai Berintegriti Tinggi - (13 Negeri) / Integrity Course - Psychological and Spiritual Empowerment Seminar in Human Capital Development Towards Developing High Integrity Officers - (13 States)	Jan – Ogos Jan – August	400
JUMLAH / TOTAL			**1124**

BIL. NO.	TEKNOLOGI MAKLUMAT & KOMUNIKASI INFORMATION & COMMUNICATION TECHNOLOGY	TARIKH DATE	PESERTA PARTICIPANTS
1.	Kursus Microsoft Excel Tahap Pertengahan Hingga Lanjutan / Intermediate to Advanced Microsoft Excel Course	6 – 7 Februari 6 - 7 February	23
2.	Kursus Microsoft Power Point Tahap Pertengahan hingga lanjutan Intermediate to Advanced Microsoft Power Point	5- 7Jun 5 -7 June	22
3.	Kursus Pengukuhan Misi Penerbangan Dron (Zon Tengah) / Dron Flight Mission Reinforcement Course (Central Region))	17-19 September 17-19 September	30
4.	Kursus Microsoft Word Tahap Pertengahan Hingga Lanjutan / Intermediate to Advanced Microsoft Word Course	18-19 September 18 -19 September	18
5.	Kursus Teknologi Update Microsoft 365 / Microsoft 365 Update Technology Course	15-16 Oktober 15 -16 October	16
JUMLAH / TOTAL			**109**

BIL. NO.	PERPUSTAKAAN DAN PENGURUSAN MAKLUMAT LIBRARY AND KNOWLEDGE MANAGEMENT	TARIKH DATE	PESERTA PARTICIPANTS
1.	Kursus Asas Penggunaan Aplikasi Kecerdasan Buatan Artificial Intelligence (AI) / Basic Artificial Intelligence (AI) Course	11 - 12 September 11 -12 September	17
2.	Kursus Penyediaan Poster Hebahan dan Promosi Menggunakan Aplikasi Canva / Promotion Poster Preparation Course Using Canva Application	11- 12 November 11 -12 November	22
JUMLAH / TOTAL			**39**

BIL. NO.	PENTADBIRAN DAN KEWANGAN ADMINISTRATION AND FINANCE	TARIKH DATE	PESERTA PARTICIPANTS
1.	Bengkel Pengurusan Keselamatan Rahsia Rasmi / Workshop on Official Secret Security Management	11 - 12 September 11 - 12 September	30
2.	Bengkel Pembangunan Klasifikasi Fail / Workshop on Development File Classification	14 - 15 Julai 14 - 15 July	30
JUMLAH / TOTAL			**60**



JUMLAH KURSUS
NUMBER OF COURSES

76



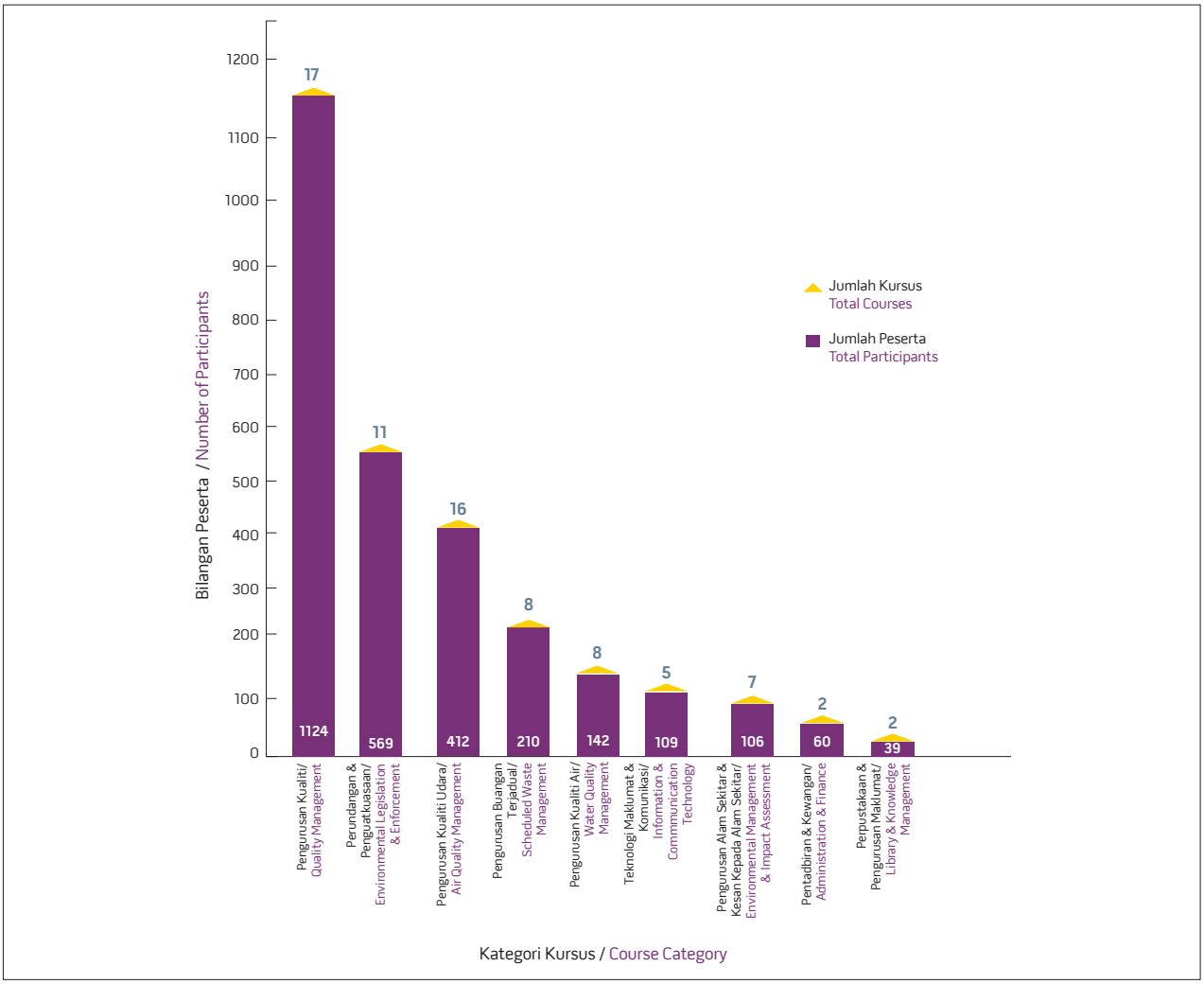
JUMLAH PEGAWAI JAS DILATIH
NUMBER OF JAS OFFICERS TRAINED

2771

Rajah 8.1: Jumlah Kursus yang Dilaksanakan dan Pegawai JAS Dilatih bagi Tahun 2024
Figure 8.1: Number of Courses and DOE Officials Trained for 2024

Rajah 8.2 menunjukkan Program Latihan yang telah dilaksanakan oleh E*i*MAS mengikut kategori kursus kepada kakitangan JAS. Sebanyak 76 latihan/kursus telah dilaksanakan dengan jumlah kehadiran seramai 2771 peserta.

Figure 8.2 shows Training Programmes that have been conducted by EiMAS according to course category to DOE staff. A total of 76 trainings / courses were implemented with the attendance of 2771 participants.



Rajah 8.2: Bilangan Kursus dan Bilangan Pegawai JAS Dilatih mengikut Kategori Kursus
Figure 8.2: Number of Courses and DOE Officials Trained by Course Category



▲ Bengkel Pembangunan Modul Kompetensi Kawalan Pencemaran Air pada 22 - 27 Jun 2024
Workshop on the Development of Competency Module for Water Pollution Control on 22 - 27 June 2024



▲ Kursus Kompetensi Protokol Persampelan, Pengawetan dan Pengendalian Sampel Efluen bagi Tujuan Penguatkuasaan (Siri I) pada 15-18 Julai 2024 di Sabah / Course on Competency in the Protocol of Sampling, Preservation, and Handling of Effluent Samples for Enforcement Purposes (Series 1) on 15 -18 July in Sabah

Program Pembangunan Kepakaran Pegawai JAS dalam Bidang Kawalan Pencemaran Air pada 17 - 20 September 2024

Program ini telah disertai oleh 14 orang Ahli Jawatankuasa Pembangunan Modul Kursus Kompetensi Pegawai JAS dalam Bidang Kawalan Pencemaran Air. Objektif program ini adalah untuk melaksanakan proses verifikasi kandungan modul dengan teknologi-teknologi sistem pengolahan efluen di lapangan serta memperkasakan kepakaran ahli jawatankuasa yang dilantik khususnya dalam bidang kawalan pencemaran air. Program ini memberi fokus kepada teknologi dalam sistem pengolahan efluen dari kilang kelapa sawit dan kilang penapisan minyak sawit. Tiga premis yang dilawat semasa program iaitu Kim Loong Sabah Mills, Edible Oils Sdn. Bhd. dan SD Guthrie Plantation Sdn.

Expertise Development Programme in Water Pollution Control for DOE Officer on 17 - 20 September 2024

This program was attended by 14 members of the Module Development Committee for DOE Officers Competency Course in the Field of Water Pollution Control. The objective of this program is to verify the module content compared to the effluent treatment system technologies applied on site as well as empowering the expertise of the appointed committee members, especially in the field of water pollution control. The program focuses on the technology in the effluent treatment system from palm oil mills and palm oil refineries. Three premises visited during the program were Kim Loong Sabah Mills, Edible Oils Sdn. Bhd., and SD Guthrie Plantation Sdn. Bhd.







▲ Kursus Pengurusan Keselamatan & Kesihatan Pekerjaan untuk Pegawai JAS / Course on Occupational Safety & Health Management for DOE Officers

Kursus ini telah dilaksanakan selama 5 hari iaitu dari 19 - 23 Februari 2024. Kursus ini dilaksanakan di Institut Alam Sekitar Malaysia, EiMAS dengan tenaga pengajar daripada Akademi Latihan Pertahanan Awam Malaysia dan Jabatan Keselamatan dan Kesihatan Pekerjaan, JKKP. Kursus ini disertai seramai 19 orang Pegawai JAS Negeri.

Objektif kursus ini adalah untuk memberi pendedahan kepada ahli-ahli JKKP di PTJ dalam mematuhi kehendak Peraturan-peraturan Keselamatan dan Kesihatan Pekerja.

This course was conducted over five days, from 19 - 23 February 2024. It was held at the Environmental Institute of Malaysia (EiMAS) with instructors from the Civil Defence Training Academy of Malaysia and the Department of Occupational Safety and Health (DOSH). A total of 19 DOE State officers participated in this course.

The objective of this course was to provide exposure to DOSH members at PTJ in complying with the requirements of Occupational Safety and Health Regulations.



▲ Kursus Pensijilan Protokol Persampelan Buangan Terjadual (CePSWaSP)
Course on Certified Person in Scheduled Waste Sampling Protocol (CePSWaSP)

Kursus ini dilaksanakan di Bilik Kuliah Melur, EiMAS sementara Ujian Praktikal pula dijalankan di Ruang Kafe EiMAS. Jumlah hari kursus adalah selama empat (4) hari iaitu dari 6 - 9 Mei 2024. Kursus ini melibatkan pembelajaran di dalam kelas untuk sesi teori dan latihan lapangan di luar kelas untuk sesi praktikal.

Kursus ini telah dihadiri oleh 18 orang peserta di mana 4 peserta daripadanya adalah dari Natural Resources and Environment Board (NREB), Sarawak. Objektif kursus ini adalah bagi melahirkan pegawai JAS yang mahir dalam pengendalian persampelan Buangan Terjadual bagi tindakan siasatan dan tindakan mahkamah.

This course was conducted in the Melur Lecture Room, EiMAS, while the Practical Examination was held at the EiMAS Café Area. The total duration of the course was four (4) days, from 6 - 9 May 2024. The course comprised classroom learning for theoretical sessions and field training for practical sessions.

A total of 18 participants attended this course, including four (4) participants from the Natural Resources and Environment Board (NREB), Sarawak. The objective of this course was to produce DOE officers who are proficient in handling Scheduled Waste sampling for investigation and legal proceedings.





▲ Kursus Pensijilan Profesional Alam Sekitar dalam Pemeriksaan Buangan Terjadual (CePSWI) Siri 1
Certified Environmental Professional in Scheduled Waste Inspection (CePSWI) Series 1

Kursus Certified Environmental Professional in Scheduled Wastes Inspection (CEPSWI) ini dianjurkan oleh Pusat Bahan Berbahaya EiMAS. Kursus ini dilaksanakan di Hotel Harbour View Kuching, Sarawak. Jumlah hari kursus adalah selama lima (5) hari bermula pada 26 - 30 Ogos 2024. Kursus ini telah dihadiri seramai 45 orang pegawai dari JAS Negeri dan Cawangan Negeri Sarawak.

Objektif utama kursus ini adalah untuk melahirkan pegawai penyiasat yang berkompeten dalam melaksanakan pemeriksaan secara komprehensif ke atas premis yang menghasilkan Buangan Terjadual selaras dengan Peraturan-peraturan Kualiti Alam Sekeliling (Buangan Terjadual) 2005 yang berkuatkuasa.

The Certified Environmental Professional in Scheduled Wastes Inspection (CEPSWI) Course was organized by the EiMAS Hazardous Materials Centre. This course was conducted at Hotel Harbour View, Kuching, Sarawak, over a duration of five (5) days, from 26 - 30 August 2024.A total of 45 officers from the DOE State and Sarawak State Branch attended this course.

The primary objective of this course is to produce competent investigative officers capable of conducting comprehensive inspections of premises generating Scheduled Wastes, in accordance with the enforcement of the Environmental Quality (Scheduled Wastes) Regulations 2005.



▲ Kursus Pengenalan kepada Fungsi Baharu Sistem MyEHS 2.0
Course on Introduction to the New Functions of the MyEHS 2.0 System

Kursus ini dilaksanakan di Institut Alam Sekitar Malaysia anjuran Seksyen EHS, Bahagian Bahan Berbahaya, Jabatan Alam Sekitar pada 28 Ogos 2024. Kursus ini telah dihadiri seramai 22 orang pihak industri.

Objektif utama kursus ini adalah bagi memperkenal dan mempromosikan kepada pihak industri mengenai penggunaan Sistem Environmentally Hazardous Substances (MyEHS) Jabatan Alam Sekitar sebagai platform bagi pengimport, pengeskport dan/atau pengilang untuk menjalankan proses notifikasi serta inventori di dalam Sistem MyEHS.

This course was conducted at the Environmental Institute of Malaysia (EiMAS) and was organized by the EHS Section, Hazardous Materials Division, Department of Environment (DOE) on 28 August 2024. A total of 22 industry representatives attended the course.

The primary objective of this course is to introduce and promote the use of the Environmental Hazardous Substances System (MyEHS) of the Department of Environment (DOE) as a platform for importers, exporters, and/or manufacturers to carry out notification and inventory processes using MyEHS system.



▲ Kursus Identifikasi dan Klasifikasi Buangan Terjadual
Course on Identification and Classification of Scheduled Waste

Kursus Identifikasi dan Klasifikasi Buangan Terjadual ini dianjurkan oleh Pusat Bahan Berbahaya EiMAS. Kursus ini dilaksanakan di Bilik Kuliah Melur, EiMAS. Jumlah hari kursus adalah selama tiga (3) hari bermula pada 20 - 22 Ogos 2024. Kursus ini telah dihadiri seramai 22 orang pegawai dari JAS Negeri (13 orang), Natural Resources and Environment Board Sarawak, NREB (4 orang) dan Jabatan Perlindungan Alam Sekitar Sabah, JPAS (5 orang).

Objektif utama kursus ini adalah bagi membangunkan kemahiran pegawai JAS sebagai orang kompeten dalam menjalankan pemeriksaan secara komprehensif ke atas premis yang menghasilkan Buangan Terjadual dan melahirkan pegawai yang berwibawa dalam mengendalikan kes-kes yang berkaitan Buangan Terjadual.

The Scheduled Waste Identification and Classification Course was organized by the EiMAS Hazardous Materials Centre. This course was conducted at the Melur Lecture Room, EiMAS, over a duration of three (3) days, from 20 - 22 August 2024.A total of 22 officers attended this course, comprising 13 officers from the State DOE, 4 officers from the Natural Resources and Environment Board (NREB), Sarawak, and 5 officers from the Environment Protection Department of Sabah (JPAS).

The primary objective of this course is to develop the skills of DOE officers as competent person in conducting comprehensive inspections on premises that generate Scheduled Wastes and to produce capable officers in handling cases related to Scheduled Wastes.





▲ Kursus Pensijilan Profesional Alam Sekitar dalam Pemeriksaan Buangan Terjadual (CePSWI) Siri 2 / Certified Environmental Professional in Scheduled Waste Inspection (CePSWI) Series 2.

Kursus Certified Environmental Professional in Scheduled Wastes Inspection (CEPSWI) Siri 2 ini dianjurkan oleh Pusat Bahan Berbahaya E*i*MAS. Kursus ini dilaksanakan di Hotel Purest, Sungai Petani, Kedah. Jumlah hari kursus adalah selama lima (5) hari bermula pada 23 - 27 September 2024. Kursus ini telah dihadiri oleh 23 orang pegawai dari JAS Negeri dan Cawangan Zon Utara.

Objektif utama kursus ini adalah untuk melahirkan pegawai penyiasat yang berkompeten dalam melaksanakan pemeriksaan secara komprehensif ke atas premis yang menghasilkan Buangan Terjadual selaras Peraturan- Peraturan Kualiti Alam Sekeliling (Buangan Terjadual) 2005 yang berkuatkuasa.

The Certified Environmental Professional in Scheduled Wastes Inspection (CEPSWI) Course – Series 2 was organized by the E*i*MAS Hazardous Materials Centre. This course was conducted at Hotel Purest, Sungai Petani, Kedah, over a duration of five (5) days, from 23 - 27 September 2024. A total of 23 officers from the State DOE and Northern Zone Branch attended this course.

The primary objective of this course is to produce competent investigative officers capable of conducting comprehensive inspections of premises generating Scheduled Wastes, in accordance with the enforcement of the Environmental Quality (Scheduled Wastes) Regulations 2005.





▲ Kursus berkaitan Keselamatan dan Kesihatan Pekerjaan Pegawai JAS - Pengenalpastian Hazard (Bahaya), Penaksiran Risiko dan Kawalan Risiko (HIRARC) / Course on Occupational Safety & Health Management for DOE Officers of Hazard Identification, Risk Assessment, and Risk Control (HIRARC)

Kursus ini dianjurkan oleh Jawatankuasa Induk Keselamatan dan Kesihatan Pekerjaan, Jabatan Alam Sekitar. Kursus ini berlangsung pada 23 - 26 September 2024 di Hotel Dorsett Grand Subang, Selangor. Kursus ini dihadiri seramai 30 orang dari kalangan pegawai JAS Ibu Pejabat dan JAS Negeri yang juga turut terlibat secara langsung sebagai ahli Jawatankuasa Keselamatan dan Kesihatan Pekerjaan di peringkat JAS Ibu Pejabat dan juga JAS Negeri.

Objektif kursus adalah bagi membangunkan Pelan Pengenalpastian Hazard, Penaksiran Risiko dan Kawalan Risiko (HIRARC) JAS sebagai salah satu keperluan dalam pematuhan yang telah ditetapkan oleh JKKP, dan juga sebagai rujukan kepada pegawai JAS dalam melaksanakan tugas-tugas hakiki di pejabat dan juga di lapangan.

This course was organized by the Occupational Safety and Health Main Committee of the Department of Environment (DOE). It was held from 23 - 26 September 2024 at Hotel Dorsett Grand Subang, Selangor.A total of 30 officers from DOE Headquarters and DOE State Offices, who are directly involved as members of the Occupational Safety and Health Committee at both DOE Headquarters and DOE State levels, attended this course.

The objective of this course is to develop the DOE Hazard Identification, Risk Assessment, and Risk Control (HIRARC) Plan as part of the compliance requirements set by DOSH. Additionally, it served as a reference for DOE officers in performing their core duties both in the office and in the field.

BENGKEL PENYEDIAAN FIELD TRAINING REPORT (FTR) (CePSWI)



Bengkel Penyediaan FTR (CePSWI) ini dianjurkan oleh Pusat Bahan Berbahaya EiMAS. Kursus ini dilaksanakan di Institut Alam Sekitar Malaysia. Jumlah hari kursus adalah selama lima (5) hari bermula pada 4 - 8 November 2024.

Kursus ini telah mendapat penyertaan penuh dari jumlah yang memohon iaitu seramai 30 orang. Objektif bengkel ini adalah bagi membantu pegawai JAS dalam menyediakan laporan latihan lapangan (FTR) yang merupakan langkah terakhir yang perlu calon lalui untuk melengkapkan proses pensijilan.

PREPARATION WORKSHOP ON (CePSWI) FIELD TRAINING REPORT (FTR)



The FTR Preparation Workshop (CePSWI) was organized by the EiMAS Hazardous Materials Centre. This workshop was conducted at the Environmental Institute of Malaysia (EiMAS) over a duration of five (5) days, from 4 - 8 November 2024.

This course received full participation from the total number of applicants, which was 30 participants.The objective of this workshop is to assist DOE officers in preparing their Field Training Report (FTR), which serves as the final step that the candidates must complete to fulfil the certification process.

PENILAIAN KESAN KEPADA ALAM SEKITAR



▲ Peserta yang Menghadiri Kursus Anjuran Pusat Penilaian
Participants who Attended the Assessment Centre Course

Pada tahun 2024, sebanyak 7 kursus kepada pegawai Jabatan Alam Sekitar dan 6 kursus kepada industri dan pengamal alam sekitar telah dilaksanakan. Kursus kepada industri dan pengamal alam sekitar adalah merupakan keperluan di bawah perundangan Akta Kualiti Alam Sekeliling (AKAS) 1974 yang memerlukan Jururunding EIA dan Juruaudit Alam Sekitar berdaftar dengan Jabatan Alam Sekitar di bawah Skim Pendaftaran Jururunding EIA dan Skim Pendaftaran Juruaudit Alam Sekitar serta keperluan Orang Yang Berwibawa di bawah Seksyen 49A AKAS 1974.

Kursus-kursus kepada pegawai Jabatan Alam Sekitar adalah bagi meningkatkan ilmu dalam melaksanakan tugas untuk penilaian laporan EIA dan juga menjalankan kerja-kerja penguatkuasaan serta pematuhan syarat-syarat kelulusan laporan EIA.

ENVIRONMENTAL IMPACT ASSESSMENT



▲ Peserta Kursus Jururunding EIA
Participants for EIA Consultant Course

In 2024, a total of 7 courses for Department of Environment officers and 6 courses for industry and environmental practitioners have been implemented. Courses for industry and environmental practitioners is a requirement under the legislation of the Environmental Quality Act (EQA) 1974 which requires EIA Consultants and Environmental Auditors to be registered with the Department of Environment under the EIA Consultant Registration Scheme and the Environmental Auditor Registration Scheme as well as the requirements of Competent Persons under Section 49A EQA 1974.

The courses for the Department of Environment officer are conducted to improve knowledge in the task of evaluating EIA reports and in conducting enforcement for compliance with the conditions of EIA report approvals.



◂ Sesi Latihan Amali di Lapangan bagi Kursus CePEOEIA / Field Practical Training for CePEOEIA Course

Kursus Kuatkuasa AKAS (Pindaan 2024): Cabaran & Perlaksanaan telah diadakan pada 4 Julai 2024 kepada 300 pegawai yang melibatkan JAS Ibu Pejabat dan JAS Negeri. Kursus yang diadakan secara atas talian ini adalah untuk memaklumkan mengenai Akta berkenaan yang telah diwartakan pada 6 Jun 2024 dan akan mula berkuat kuasa bermula 7 Julai 2024. Akta Kualiti Alam Sekeliling (Pindaan) 2024 adalah pindaan kali ke-7 dan memberi keutamaan kepada pindaan hukuman, denda dan penalti yang melibatkan julat kadar denda antara RM5,000 hingga RM10 juta, selain penjara mandatori tidak melebihi lima tahun. Selain itu, kadar kompaun juga ditingkatkan daripada maksimum RM2,000 kepada tidak melebihi 50 peratus daripada denda maksimum kesalahan berkaitan.

Course on Environmental Quality Act (Amendment 2024): Challenges & Implementation was held on 4 July 2024 to 300 officers included DOE Headquarters and DOE State. This online course was held to inform about the Act which was gazetted on 6 June 2024 and will come into effect on 7 July 2024. The Environmental Quality Act (Amendment) 2024 is the 7th amendment and gives priority to amendments to punishments, fines, and penalties which involve a range of fines between RM5,000 and RM10 million, in addition to mandatory imprisonment not exceeding five years. Apart from that, the compound rate has also been increased from a maximum of RM2,000 to not exceeding 50 percent of the maximum fine for the relevant offense.



▲ Gambar ketika Kursus Studio E*i*MAS mengenai AKAS (Pindaan 2024): Cabaran dan Pelaksaanan
Photo during E*i*MAS Studio Course on EQA (Amendment 2024): Challenges & Implementation



▲ Gambar Kursus Tindak Balas Kawalan dan Permbersihan Tumpahan Minyak di Laut bersama Penceramah
Photo of Participants of Course on Oil Response Control with the Trainer

PROGRAM LATIHAN KOMPETENSI E*i*MAS KEPADA PEGAWAI INDUSTRI 2024

E*i*MAS telah menawarkan kursus-kursus pensijilan industri dalam pengurusan alam sekitar mengikut keperluan Akta Kualiti Alam Sekeliling 1974. Pada tahun 2024, sebanyak sepuluh (10) jenis kursus pensijilan industri telah dilaksanakan dengan jumlah 203 siri kursus. Kursus-kursus yang terlibat adalah seperti di **Jadual 8.2.**

Sepanjang tahun 2024, E*i*MAS telah berjaya melatih seramai 4,972 peserta industri.

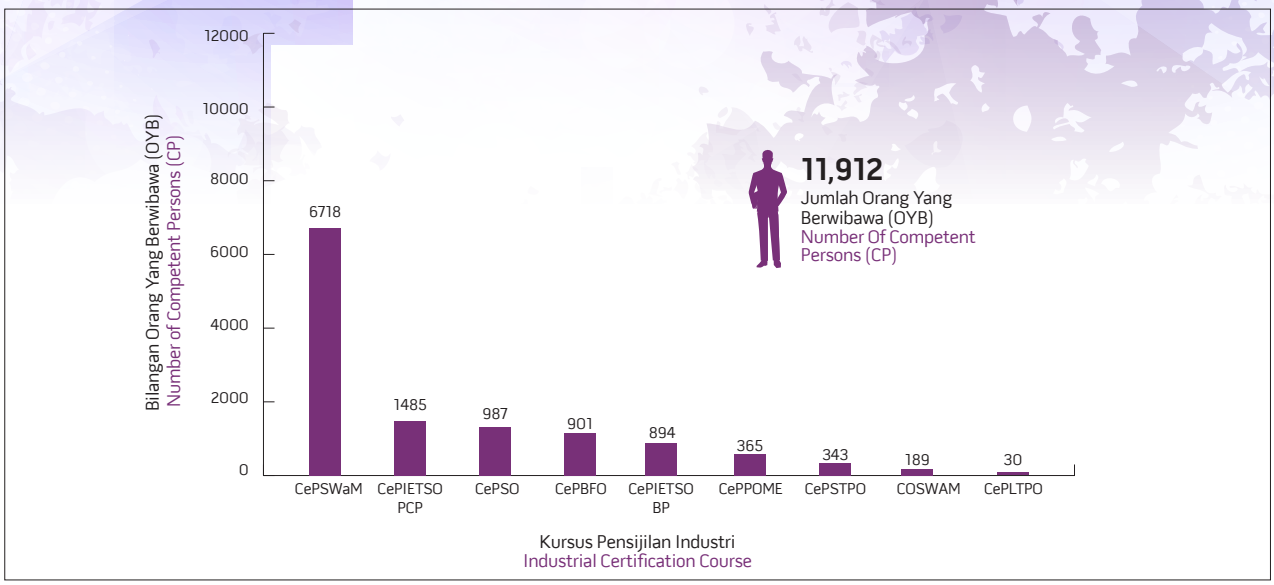
EiMAS COMPETENCY TRAINING PROGRAMME FOR INDUSTRY OFFICERS 2024

E*i*MAS has offered industry certification courses in environmental management in accordance with the requirements of the Environmental Quality Act 1974. In year 2024, ten (10) industrial certification courses were conducted with a total of 203 series of courses. The competency courses are as in **Table 8.2.**

Throughout the year 2024, E*i*MAS has successfully trained 4,972 industry participants.

Jadual 8.2: Senarai Program Latihan Kompetensi E*i*MAS kepada Pegawai Industri
Table 8.2: E*i*MAS Competency Training Programmes for Industries Officers

BIL. NO.	PENGURUSAN ALAM SEKITAR DAN KESAN KEPADA ALAM SEKITAR ENVIRONMENTAL MANAGEMENT AND IMPACT ASSESSMENT	BIL. PENGANJURAN KURSUS NO. OF COURSE ORGANIZED	PESERTA PARTICIPANTS
1.	**(CePBFO)** Kursus Profesional Alam Sekitar Bertauliah dalam Pengoperasian Penapis Beg / Course for Certified Environmental Professional in Bag Filters Operation	25	505
2.	**(CePSO)** Kursus Profesional Alam Sekitar Bertauliah dalam Pengoperasian Pengahar / Course for Certified Environmental Professional in Scrubbers' Operation	19	363
3.	**(CePIETSO BP)** Kursus Profesional Alam Sekitar Bertauliah dalam Pengoperasian Sistem Efluen Perindustrian (Proses Biologikal) / Course on Certified Environmental Professional in the Operation of Industrial Effluent Treatment Systems (Biological Treatment Process)	15	295
4.	**(CePLTPO)** Kursus Profesional Alam Sekitar Bertauliah dalam Pengoperasian Loji Rawatan Larut Resap / Course for Certified Environmental Professional in Leachate Treatment Plant Operation	2	22
5.	**(CePIETSO – PCP)** Kursus Profesional Alam Sekitar Bertauliah dalam Pengoperasian Sistem Efluen Perindustrian (Proses Kimia) / Course for Certified Environmental Professional in the Operation of Industrial Effluent Treatment Systems (Physical Chemical Treatment Process)	29	651
6.	**(CePSWaM)** Kursus Profesional Alam Sekitar Bertauliah dalam Pengurusan Buangan Terjadual / Course for Certified Environmental Professional in Scheduled Waste Management	96	2660
7.	**(CePSTPO)** Kursus Profesional Alam Sekitar Bertauliah dalam Pengoperasian Sistem Rawatan Kumbahan / Course for Certified Environmental Professional in Sewage Treatment Plant Operation	6	146
8.	**(CePPOME)** Kursus Profesional Alam Sekitar Bertauliah dalam Pengoperasian Sistem Rawatan Efluen Kilang Kelapa Sawit / Course for Certified Environmental Professional in the Treatment of Palm Oil Mill Effluent (Pond Processes)	5	148
9.	**(CePEOEIA)** Kursus Profesional Pegawai Alam Sekitar bagi Projek EIA / Certified Professional Environmental Officer in EIA Project	2	72
10.	**(COSWaM)** Kursus Operator Bertauliah dalam Pengurusan Buangan Terjadual Course for Certified Operator in Scheduled Waste Management	4	110
	JUMLAH / TOTAL		4972



Rajah 8.3 : Bilangan Orang Yang Berwibawa (OYB) Pegawai Industri di Malaysia mengikut Jenis Pensijilan pada 31 Disember 2024

Figure 8.3 : Number of Competent Persons of Industry Personnel in Malaysia according to Type of Certification as of 31 December 2024

Rajah 8.3 menunjukkan sehingga 31 Disember 2024, E*i*MAS telah berjaya mengiktiraf seramai 11, 912 orang pegawai industri di Malaysia sebagai Orang Yang Berwibawa selaras dengan kehendak Seksyen 49A, Akta Kualiti Alam Sekeliling 1974.

Figure 8.3 shows that as of 31 December 2024, E*i*MAS has successfully certified a total of 11,912 industry personnel in Malaysia as Competent Persons in accordance with the requirements of Section 49A of the Environmental Quality Act, 1974.



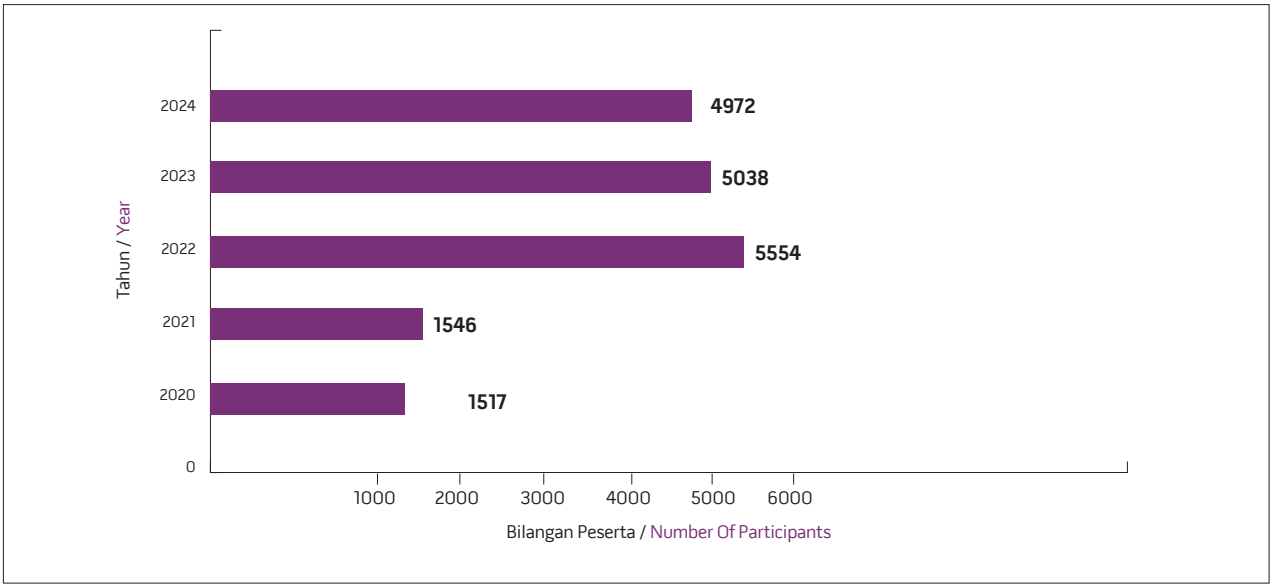
Rajah 8.4: Bilangan Kursus Pensijilan Industri yang Dianjurkan, 2024

Figure 8.4: Number of Industry Certification Courses Conducted, 2024

Sepanjang tahun 2024, sebanyak 10 jenis kursus pensijilan industri telah dilaksanakan dengan jumlah 203 siri kursus, seperti yang ditunjukkan dalam **Rajah 8.4** Kursus Operator Bertauliah dalam Pengurusan Buangan Terjadual (COSWaM), merupakan kursus pensijilan yang telah mendapat sambutan dari peserta industri automotif semenjak ia mula diperkenalkan pada tahun 2022.

In 2024, a total of 10 types of industrial certification courses were conducted with a total of 203 series of courses, as shown in **Figure 8.4** The Certified Operator Course in Scheduled Waste Management (COSWaM) had been well received by the automotive industry participants since it was first offered in 2022.

Rajah 8.5 : Bilangan Kehadiran Peserta Kursus Pegawai Industri bagi 5 Tahun Terkini (2020 – 2024)
Figure 8.5 : Attendance of Industry Personnel as Course Participants for the Last 5 Years (2020 – 2024)



Bilangan kehadiran pegawai industri sebagai peserta bagi kursus pensijilan untuk 5 tahun terkini dari 2020 hingga 2024 seperti mana di dalam **Rajah 8.5.** Kehadiran peserta bagi tahun 2024 menunjukkan sedikit penurunan tidak begitu ketara sebanyak 1.3% iaitu sekitar 66 orang, berbanding tahun sebelum.

The attendance of industry personnel as participants for industry certification courses in the last 5 years from 2020 to 2024 is as shown in **Figure 8.5.** The participant attendance in 2024 saw a 1.3% decrease, approximately 66 people, which is not as significant compared to the previous year.



▲ Peserta Menduduki Peperiksaan COSWaM
Participants Sit for the COSWaM Exam



▲ Peserta COSWaM di Raia Hotel Convention Center, Kuching
COSWaM participants at Raia Hotel Convention Center, Kuching



▲ Peserta Menjalankan Tugasan COSWaM
Participants carry out COSWaM tasks



▲ Penyerahan Bahan Sample untuk Tugasan Berkumpulan
Submission of Sample Materials for Group Assignments



▲ Peserta COSWaM di Nilai Springs Resort, Negeri Sembilan
COSWaM Participants at Nilai Springs Resort, Negeri Sembilan



▲ Peserta COSWaM di Grand Continental Hotel, Kuching
COSWaM Participants at Grand Continental Hotel, Kuching



▲ Peserta COSWaM di Orient Star Resort, Lumut, Perak
COSWaM Participants at Orient Star Resort, Lumut, Perak

KURSUS PENSIJILAN PENGUJI UJIAN PELEPASAN KENDERAAN (DIESEL DAN PETROL) UNTUK KEMUDAHAN YANG DILULUSKAN DAN PENGENDALI BERKUMPULAN BAGI TAHUN 2024

Pensijilan Penguji Ujian Pelepasan Kenderaan (Diesel Dan Petrol) untuk Kemudahan Yang Diluluskan Dan Pengendali Berkumpulan bagi Tahun 2024 mendapat penyertaan yang menggalakkan iaitu seramai 142 peserta yang majoritinya adalah daripada Pusat Penguji

VEHICLE EMISSIONS TESTER CERTIFICATION COURSE (DIESEL AND GASOLINE) FOR APPROVED FACILITIES AND FLEET OPERATOR FOR 2024

This Vehicle Emissions Tester Certification Course (Diesel And Gasoline) for Approved Facilities and Fleet Operator for 2024 received encouraging participation, with a total of 142 participants, the majority of whom were from the licensed vehicle inspection centre,

kenderaan yang dilesenkan iaitu PUSPAKOM. Kursus ini merupakan kursus kompetensi merangkumi teori dan amali bagi memberi pengetahuan dan kemahiran pengendalian alat meter asap dan meter gas kenderaan bagi diesel dan petrol. Kursus ini telah diadakan sebanyak empat (4) siri sepanjang tahun 2024.

PUSPAKOM. These courses are competency-based programs that include both theory and practical sessions to provide knowledge and skills in operating smoke meters and gas meters for diesel and petrol vehicles. This course was conducted for four (4) series in year 2024.



▸ Aktiviti kursus Pensijilan Ujian Pelaporan Kenderaan (Diesel dan Petrol) untuk Kemudahan yang Diluluskan dan Pegendali Berkumpulan bagi Tahun 2024 / Vehicle Emissions Tester Certification Course (Diesel And Gasoline) for Approved Facilities and Fleet Operator for 2024

KURSUS PENSIJILAN JURUTEKNIK SERVIS (CSTP) SEKTOR PENYEJUKBEKUAN DAN PENYAMAN UDARA BAGI PEGAWAI JAS

Pusat Kawalan dan Pengawasan Udara, EiMAS dengan kerjasama Bahagian Udara, JAS Ibu Pejabat telah melaksanakan Kursus Pensijilan Juruteknik Servis (CSTP) Sektor Penyejukbekuan dan Penyaman Udara bagi Pegawai JAS. Kursus ini telah dilaksanakan di Tanera Hotel dengan penglibatan seramai 28 orang pegawai JAS Negeri. Kursus ini buat pertama kalinya dianjurkan kepada pegawai JAS bagi memberi kemahiran berkaitan pengurusan penyejukbekuan kepada pegawai JAS Negeri untuk menjalankan pemantauan penggunaan penyejukbeku di lapangan.

COURSE ON CERTIFIED TECHNICIAN IN REFRIGERANT AND AIR CONDTITIONING SYSTEM FOR DOE OFFICER

The Air Control and Surveillance Center, EiMAS, in collaboration with the Air Division, DOE Headquarters, conducted the Certified Service Technician Program (CSTP) for the Refrigeration and Air Conditioning Sector for DOE officers. The course was held at Tanera Hotel with the participation of 28 DOE State Officers. This course was organized for the first time specifically for DOE officers to equip them with skills related to refrigerant management, enabling them to monitor refrigerant usage in the field effectively.



▲ Peserta-Peserta Kursus Pensijilan Juruteknik Servis (CSTP) Sektor Penyejukbekuan dan Penyaman Udara bagi Pegawai JAS / Participants of the Refrigeration and Air Conditioning Sector Service Technician Certification Course (CSTP) for DOE Officers



▲ Aktiviti Kursus Pensijilan Juruteknik Servis (CSTP) Sektor Penyejukbekuan dan Penyaman Udara bagi Pegawai JAS Refrigeration and Air Conditioning Sector Service Technician Certification Course (CSTP) Activities for DOE Officers

KURSUS KOMPETENSI KAWALAN PENCEMARAN UDARA UNTUK PEGAWAI JAS

Pada tahun 2024, Pusat Kawalan dan Pengawasan Udara, EiMAS telah menganjurkan tiga (3) kursus pensijilan khas bagi pegawai JAS iaitu:

CERTIFIED COURSE ON AIR POLLUTION CONTROL FOR DOE OFFICER

In 2024, the Air Control and Surveillance Center, EiMAS, organized three (3) special certification courses for DOE officers, namely:

i. Kursus Profesional Alam Sekitar dalam Pemeriksaan Penggahar (CePSI)

ii. Kursus Profesional Alam Sekitar dalam Pemeriksaan Beg Penapis Pengumpul Habuk (CePBFI)

iii. Kursus Pensijilan Penguji Ujian Pelepasan Asap Kenderaan Bermotor (Diesel, Petrol & Bunyi Bising).

Kursus ini dilaksanakan bagi memberikan pengetahuan dan pendedahan kepada pegawai-pegawai di lapangan berkaitan pengurusan dan pengendalian alat kawalan pencemaran udara di dalam industri.

Program Kepakaran Pegawai di Persidangan Aerosol Asia

Seramai 10 orang pegawai dari Jabatan Alam Sekitar (JAS) telah menyertai Persidangan Aerosol Asia ke-13 (AAC 2024) yang berlangsung pada 3 - 7 November 2024 di Pusat Konvensyen Borneo Kuching (BCCK), Sarawak, Malaysia. Penyertaan ini bertujuan untuk memperluaskan pengetahuan pegawai tentang sains aerosol, teknologi pengukuran, serta kesan aerosol terhadap kesihatan dan alam sekitar.

Pegawai-pegawai JAS turut memanfaatkan peluang untuk berinteraksi dengan penyelidik, ahli sains, dan wakil industri antarabangsa bagi bertukar pandangan serta memperoleh maklumat terkini berkenaan teknologi kawalan pencemaran udara dan pengurusan aerosol. Penyertaan ini seiring dengan usaha JAS dalam memperkukuh keupayaan pemantauan dan penguatkuasaan pencemaran udara di negara ini.

i. Environmental Professional Course in Scrubber Inspection (CePSI)

ii. Environmental Professional Course in Dust Collector Bag Filter Inspection (CePBFI)

iii. Certification Course for Vehicle Emissions Testing (Diesel, Petrol & Noise)

These courses were conducted to provide knowledge and exposure to field officers regarding the management and operation of air pollution control equipment in industries.

Officer Expertise Program at the Asian Aerosol Conference

A total of 10 officers from the Department of Environment (DOE) participated in the 13th Asian Aerosol Conference (AAC 2024), which was held from 3 – 7 November 2024, at the Borneo Kuching Convention Center (BCCK), Sarawak, Malaysia. Their participation was aimed to broaden the officers' knowledge on aerosol science, measurement technologies, and the impact of aerosols on health and the environment.

The DOE officers also took the opportunity to interact with researchers, scientists, and industry representatives from around the world to exchange ideas and gain the latest information on air pollution control technologies and aerosol management. This participation aligns with the DOE's efforts to strengthen its capacity in monitoring and enforcing air pollution control in the country.



▲ Pegawai-Pegawai Jabatan Alam Sekitar (JAS) di Persidangan Aerosol Asia Ke-13
Department of Environment (DOE) Officers at the 13th Asian Aerosol Conference

PROGRAM / KURSUS / BENGKEL / AKTIVITI PUSAT KORPORAT E*i*MAS

Kursus Pengurusan Gred C44 - The Leader In You

Kursus The Leader in You dianjurkan buat kali kedua dengan kerjasama Razak School of Goverment (RSOG) pada 10 - 12 Jun 2024 di Avillion Admiral Cove, Port Dickson, Negeri Sembilan yang melibatkan 25 orang pegawai JAS di kalangan Ketua Cawangan JAS, Pegawai Kawalan Alam Sekitar Kanan dan pegawai-pegawai kanan JAS dari seluruh negara.

Objektif program adalah untuk mendedahkan peserta kepada lima kompetensi kepimpinan bagi pegawai sektor awam di Malaysia iaitu Authentic, Agile dan Adaptive, Strategic, Executive Presence, dan Transformative.

Kursus ini wajar diteruskan dan diperluaskan kepada semua pegawai JAS bermula dari gred pengurusan dan professional kerana kursus ini dapat memberikan manfaat dan pendedahan mengenai aspek kepemimpinan dalam JAS di peringkat awal.



▲ Sesi Pembelajaran Peserta Kursus bersama Penceramah dari RSOG / Learning Session with speakers from RSOG.

Kursus Asas Pegawai Baharu JAS 2024

Kursus ini telah dijalankan selama 4 minggu iaitu pada 1 - 26 Julai 2024 di Institut Alam Sekitar Malaysia (E*i*MAS) yang telah melibatkan seramai 24 orang pegawai baharu Jabatan Alam Sekitar (JAS).

Di antara objektif kursus ini adalah memberi pengetahuan dan pendedahan kepada peserta kursus mengenai tanggungjawab dan bidang tugas pegawai di Jabatan Alam Sekitar (JAS). Fokus kursus ini juga adalah supaya setiap pegawai di JAS mahir dalam penggunaan Akta Kualiti Alam Sekeliling (AKAS) 1974, Arahan Tetap Operasi Penguatkuasaan (ATOP), Prosedur Tindakan Operasi (PTO) dan polisi jabatan.

Pengisian kursus dimulakan seawal 7.00 pagi dengan latihan kawad di bawah seliaan pegawai dari Angkatan Tentera Malaysia (ATM) dan berakhir pada jam 7.00 malam selepas sesi senaman.

PROGRAM / COURSE / WORKSHOP / ACTIVITIES E*i*MAS CORPORATE CENTER

Management Course Grade C44 - The Leader In You

The Leader in You course was organized for second time in collaboration with the Razak School of Government (RSOG) from 10 - 12 June 2024, at Avillion Admiral Cove, Port Dickson, Negeri Sembilan, involving 25 officers including DOE Head of Branch, Senior Control Officers and senior DOE officers from the Department of Environment (DOE) nationwide.

The program's objective is to provide exposure for participants to the five leadership competencies for public sector officers in Malaysia, namely Authentic, Agile and Adaptive, Strategic, Executive Presence, and Transformative.

This course should be continued and expanded to all DOE officers from management and professional level for early exposure towards leadership at DOE.



▲ Aktiviti Luar yang Diadakan untuk Peserta Kursus. Outdoor Activities Held for Participants

Basic Course For New DOE Officers 2024

This course was conducted for 4 weeks from 1 - 26 July 2024, at Environmental Institute of Malaysia (E*i*MAS), involving a total of 24 newly appointed officers from the Department of Environment (DOE).

The objective of this course is to provide knowledge and exposure to participants about the responsibilities and duties of officers in the Department of Environment (DOE). The focus of this course is to train DOE officers to be proficient in the use of the Environmental Quality Act (EQA) 1974, Standard Operating Procedures and department policies.

The course starts as early as 7.00 am with marching exercise under the supervision of officers from Malaysian Armed Forces (ATM) and ends at 7.00 pm after exercise session.



▲ Sesi Bergambar selepas Sesi Ujian Kawad Peserta Kursus
Photo Session after Marching Evaluation Session



▶ Lawatan Pembelajaran ke Tapak Projek EIA untuk Peserta Kursus Study Tour to the EIA Project Site for Participants

Kursus Pengukuhan Misi Penerbangan Dron

Drone Flight Mission Reinforcement Course





▲ Peserta Menjalani Latihan Praktikal Mengendalikan Dron
The Participants Undergo Practical Training in Operating Drones

Kursus Pengukuhan Misi Penerbangan Dron Zon Tengah telah dihadiri oleh 30 peserta dari JAS Ibu Pejabat, JAS Selangor dan JAS WP Kuala Lumpur. Penganjuran kursus ini bertujuan untuk meningkatkan kemahiran pengendalian dron berspesifikasi tinggi di samping menekankan kepentingan prinsip airmanship untuk keselamatan semasa penerbangan. Peserta juga diajar untuk menyediakan misi penerbangan dron bagi tujuan pemantauan dan pemetaan lokasi dan seterusnya memproses cerapan imej dron untuk dimuat naik dalam sistem GeoSpAS. Peserta juga berpeluang untuk berkongsi ilmu antara juruterbang baru dan juruterbang yang telah memperolehi sijil kompetensi Remote Pilot Certicate of Competency – Basic (RCoC-B). Kursus ini berhasil memperkukuhkan pemahaman peserta dalam aspek teknikal, keselamatan, dan pengurusan data geospatial, sekaligus meningkatkan kemahiran dalam melaksanakan misi penerbangan dron dengan lebih berkesan dan selamat.

The Drone Flight Mission Reinforcement Course for the Central Zone was attended by 30 participants from the DOE Headquarters, DOE Selangor, and DOE Federal Territory of Kuala Lumpur. The objective of this course is to enhance skills in operating high-specification drones while emphasizing the importance of airmanship principles for safety during flights. Participants were also taught how to prepare drone flight missions for monitoring and mapping locations and subsequently upload the drone image observations into GeoSpAS system. Additionally, participants had the opportunity to share knowledge between new drone pilots and those who have obtained the Remote Pilot Certificate of Competency – Basic (RCoC-B). This course successfully strengthened participants' understanding in technical aspects, safety, and geospatial data management, while also improving their ability to carry out drone flight missions more effectively and safely.



▶ Gambar Peserta Kursus Asas Penggunaan Applikasi Kecerdasan Buatan bersama Pengarah EiMAS
Photo of Participants for Artificial Intelligence Application Basic Course with Director of EiMAS

Kursus selama dua hari telah diadakan pada 11 - 12 September 2024. Penyertaan peserta adalah seramai 17 orang pegawai Eimas. Objektif utama kursus adalah untuk memberi pendedahan dan pengenalan asas aplikasi kecerdasan buatan (Artificial Intelligence). Peserta berpeluang mempelajari penggunaan AI dalam penyelidikan, penulisan dan pengimejan.

The two-day course was held on 11 - 12 September 2024. The participants were 17 EiMAS officers. The main objective of the course is to provide exposure and basic introduction to the application of artificial intelligence. Participants have the opportunity to learn the use of AI in research, writing, and imaging.



▲ Kursus Penyediaan Poster Hebahan dan Promosi Menggunakan CANVA
Course on Preparing Publicity and Promotional Posters Using CANVA

Kursus Penyediaan Poster Hebahan dan Promosi Menggunakan Applikasi CANVA telah dihadiri oleh 22 orang peserta dari kalangan pegawai EiMAS. Kursus selama dua hari ini berjaya mencapai objektif iaitu memberi pendedahan dan kemahiran kepada peserta dalam menghasilkan infografik serta poster hebahan. Keberkesanan kursus dapat dinilai dengan penghasilan reka grafik yang bagus dan menarik terutama dalam menghasilkan poster berkaitan dengan tugas masing-masing.

The Course on Preparing Publicity and Promotional Posters Using the CANVA Application was attended by 22 participants comprising EiMAS officers. This two-day course successfully achieved its objective of providing exposure and skills to participants in creating infographics and publicity posters. The effectiveness of the course can be seen through the production of good and attractive graphic designs, especially in creating posters related to their respective duties.



BAB
CHAPTER
09

PERKHIDMATAN PERPUSTAKAAN
LIBRARY SERVICES

PERPUSTAKAAN JABATAN ALAM SEKITAR
DEPARTMENT OF ENVIRONMENT LIBRARY

PERANAN PERPUSTAKAAN / LIBRARY ROLE

Perpustakaan Jabatan Alam Sekitar merupakan pusat kecemerlangan literasi maklumat dan pusat penyimpanan maklumat berkaitan Jabatan Alam Sekitar
As a centre of excellence for information literacy and information storage related to the Department of Environment

Berperanan untuk membekalkan, memelihara dan menyalurkan maklumat dalam pelbagai bentuk dan medium kepada warga JAS
As a platform for providing, nurturing, and channeling information in various forms and mediums to DOE officials

Menyediakan persekitaran pembacaan yang kondusif kepada warga JAS
As an area providing a conducive reading environment for DOE officials

PERKHIDMATAN PERPUSTAKAAN / LIBRARY SERVICES

Antara perkhidmatan yang disediakan adalah:
Library services include:



LAIN-LAIN AKTIVITI PERPUSTAKAAN

Khidmat nasihat perpustakaan;

i. Bekerjasama dalam pelaksanaan program, latihan dan pengurusan perpustakaan;
ii. Mempelbagaikan bahan digital yang berkualiti;
iii. Menyelaras maklumat di ' Enviro Digital Library' (EDL) menggantikan Enviro Knowledge Management Centre (EKMC), Enviro Museum (EMUSEUM), sistem pengurusan perpustakaan KOHA dan Media Sosial;
iv. Lawatan kerja luar (Perpustakaan);
v. Menyediakan Pelaporan Statistik sistem repositori perpustakaan setiap bulan kepada semua Bahagian dan JAS Negeri.

OTHER LIBRARY ACTIVITIES

Advisory service;

i. Cooperate in training and programmes held for DOE;
ii. Diversify quality digital content;
iii. Coordinate in gathering information for Enviro Digital Library (EDL) previously known as Enviro Knowledge Management Centre (EKMC), Enviro Museum (EMUSEUM), Library Management System (KOHA), and social media;
iv. Conduct library visits; and
v. Prepared Statistical Report for all library repository once a month to DOE Divisions and States.

PENGUNJUNG PERPUSTAKAAN

Sepanjang tahun 2024, Perpustakaan JAS telah merekodkan jumlah pengunjung secara fizikal seramai 7,689 orang berbanding 1,010 orang pada tahun sebelumnya. Peningkatan penggunaan perpustakaan dapat dilihat dari segi penggunaan ruang melalui program-program lawatan dari agensi luar, aktiviti-aktiviti anjuran kelab dan persatuan di JAS dan mesyuarat dan sesi perbincangan di samping peningkatan penggunaan melalui bahan baharu yang disediakan. Pecahan bilangan pengunjung adalah seperti **Rajah 9.1.**

LIBRARY VISITORS

Throughout 2024, the DOE Library recorded a total of 7,689 physical visitors compared to 1,010 in the previous year. The increase in library usage can be seen in terms of space usage through visiting programs from external agencies, activities organized by clubs and associations at DOE and meetings and discussion sessions in addition to increased usage through new materials provided. The breakdown of the number of visitors is as shown in **Figure 9.1**.





Rajah 9.1: Bilangan Pengunjung Perpustakaan
Figure 9.1: Number of Library Visitor

PEMBANGUNAN KOLEKSI

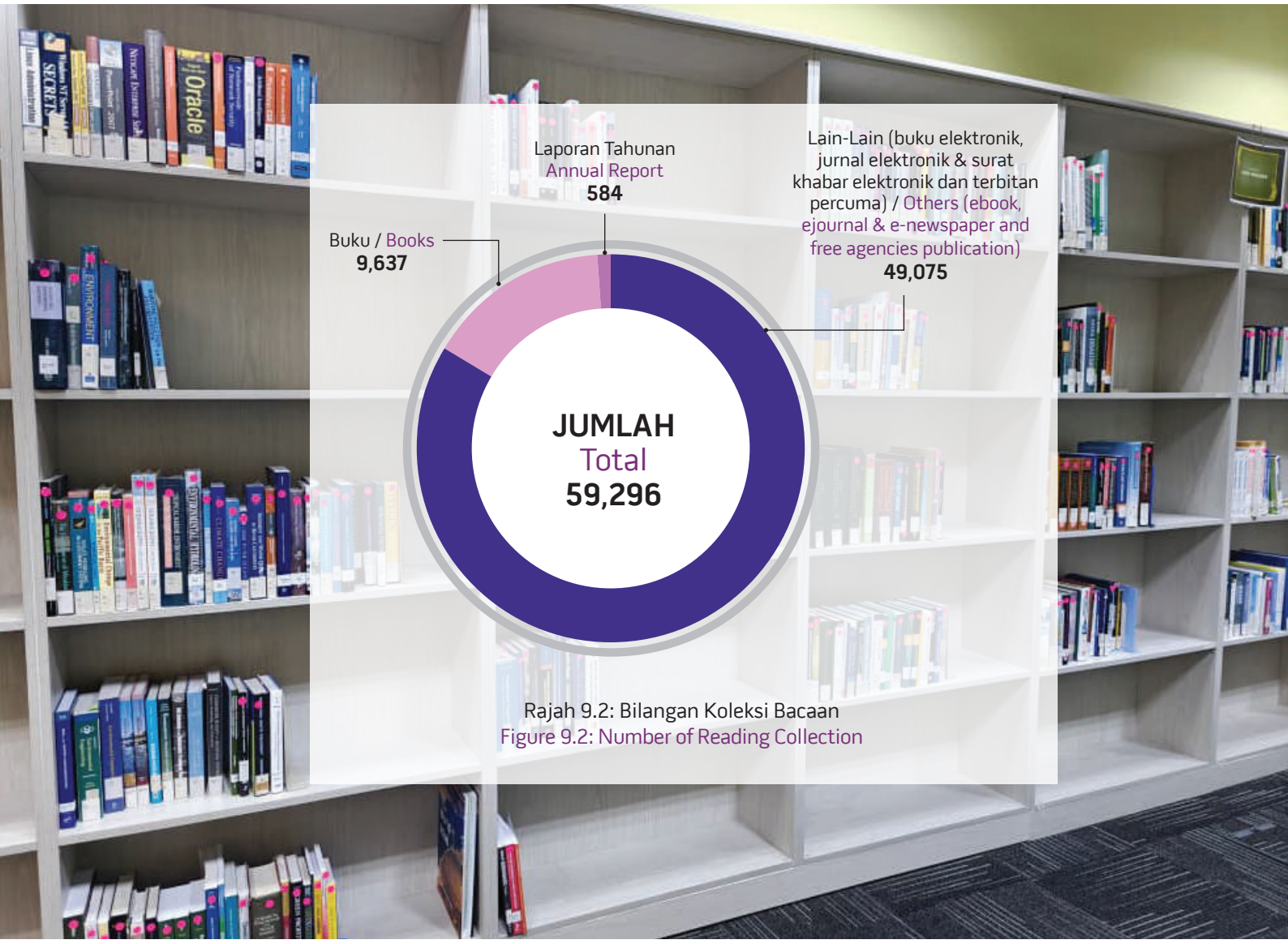
Perpustakaan JAS telah mengambil inisiatif menambah koleksi elektronik bahan perpustakaan pada tahun 2023 melalui penyediaan koleksi digital (buku elektronik) melalui platfom Proquest dan dua (2) jurnal elektronik iaitu Jurnal of American Chemical Science (ACS) dan Springer Nature. Penambahan koleksi buku elektronik pada tahun 2024 adalah sebanyak 40 judul menjadikan keseluruhan koleksi bahan rujukan perpustakaan sebanyak 59,296 dengan pengurangan penerimaan koleksi percuma dari agensi kerajaan dan swasta.

Pada tahun semasa juga, perpustakaan JAS telah melaksanakan Projek Pendigitalan bagi dua puluh (20) album Koleksi Gambar Aktiviti JAS dan lima puluh enam (56) dokumen laporan dan Tesis Alam Sekitar bagi tahun 1984 hingga awal tahun 2022. Pecahan koleksi terkini adalah seperti **Rajah 9.2**.

DEVELOPMENT OF LIBRARY MATERIAL

DOE Library has taken the initiative to increase the electronic collection of library materials in 2023 by providing digital collection (e-book) through the Proquest platform and two (2) electronic journals, namely the Journal of American Chemical Science (ACS) and Springer Nature. An additional 40 e-book titles were added in 2024, bringing the total library reference collection to 59,296, with a decrease in the receipt of complimentary collections from government and private agencies.

In the current year, the DOE Library also implemented a Digitisation Project for twenty (20) photo albums of DOE activity collections and fifty-six (56) environmental reports and theses from the year 1984 to early 2022. The breakdown are as follows **Figure 9.2**.



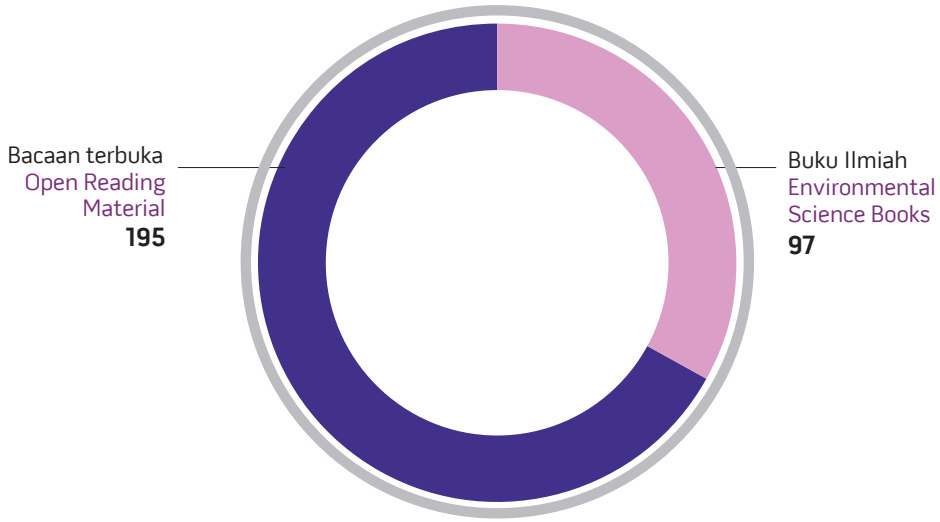
Rajah 9.2: Bilangan Koleksi Bacaan
Figure 9.2: Number of Reading Collection

PINJAMAN BAHAN PERPUSTAKAAN

Penyediaan bahan koleksi terbaru perpustakaan turut meningkatkan penggunaan perpustakaan terutamanya transaksi pinjaman dan penggunaan bahan perpustakaan. Sepanjang tahun 2024, rekod pinjaman bahan telah mencapai sebanyak 292 bahan seperti **Rajah 9.3**.

LIBRARY MATERIALS LOAN

The provision of new library collection materials has also increased library usage, particularly in terms of borrowing transactions and material usage. Throughout the year 2024, a total of 292 items were recorded as borrowed. The average borrowing transactions comprised as **Figure 9.3**.



Rajah 9.3: Bilangan Pinjaman Bahan Bacaan
Figure 9.3: Number of Reading Material Loan

PINJAMAN ANTARA PERPUSTAKAAN

Perkhidmatan ini telah diperkenalkan di JAS bagi membantu pegawai dan kakitangan JAS yang menyambung pengajian atau menduduki ujian kenaikan pangkat mendapatkan bahan yang tidak tersedia di Jabatan. Transaksi Pinjaman Antara Perpustakaan akan dilakukan apabila terdapat permintaan daripada kakitangan JAS. Bagi tahun 2024, transaksi pinjaman adalah sebanyak dua (2) kali melibatkan Perpustakaan Kementerian Kesihatan Malaysia dengan pinjaman buku sebanyak sepuluh (10) naskah.

Sebagai salah satu inisiatif galakan membaca di kalangan remaja dan kanak-kanak melalui bahan bacaan santai, perpustakaan telah meminjam sebanyak 300 buku koleksi pelbagai genre dari Perpustakaan Negara Malaysia.

INTERLIBRARY LOAN

This service has been introduced at DOE to provide DOE officers and staff who are continuing their studies or sitting for exams, to obtain materials that are not available in the DOE library. Interlibrary Loan will be carried out when there is a request from a DOE staff. For 2024, Interlibrary loan occurred twice (2) involving the Library of Ministry of Health Malaysia with a loan of ten (10) books.

As one of the initiatives to encourage reading among teenagers and children through leisure reading materials, the library has borrowed 300 books from various genres from the National Library of Malaysia.

PERMOHONAN *INTERNATIONAL STANDARD BOOK NUMBER* (ISBN)

Perkhidmatan ini telah diperkenalkan di JAS bagi membantu penerbitan bahan bacaan Jabatan Alam Sekitar. Bagi tahun 2024, sebanyak lapan (8) permohonan ISBN telah dikemukakan ke Perpustakaan Negara Malaysia bagi tiga (3) penerbitan baru JAS dan lima (6) bagi Laporan Tahunan JAS negeri..

APPLICATIONS FOR INTERNATIONAL STANDARD BOOK NUMBER (ISBN)

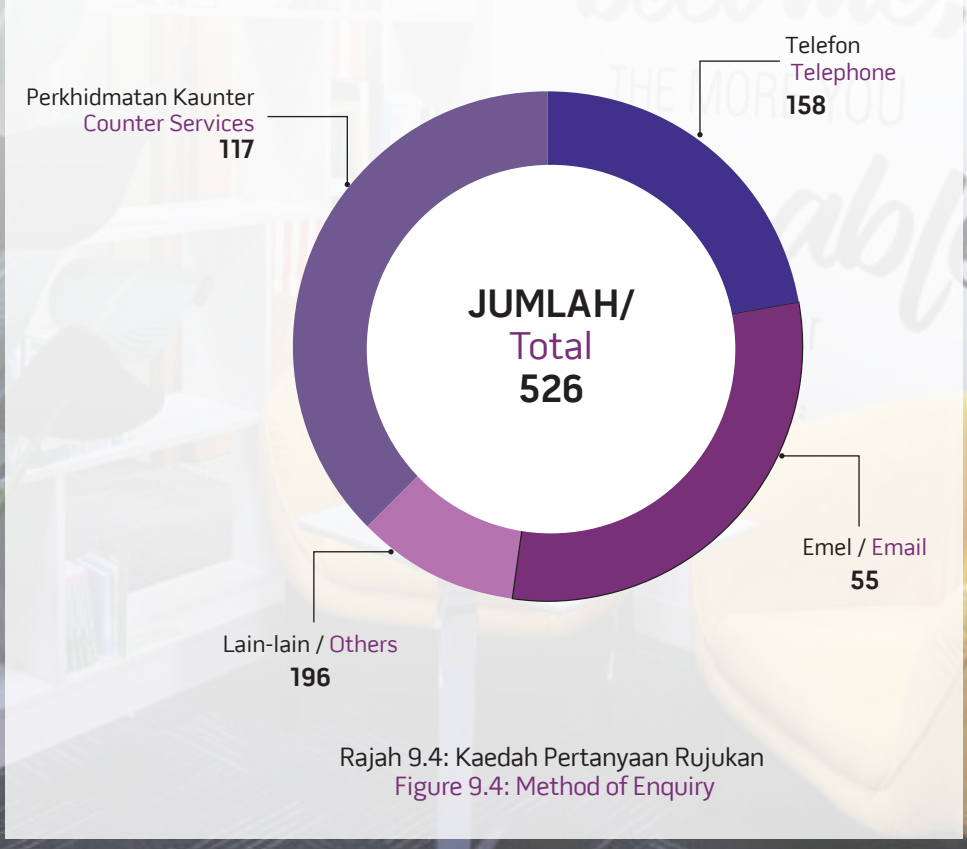
This service has been introduced in DOE to help the publication of reading material for the Department of Environment. For the year 2024, a total of eight (8) ISBN applications have been submitted to the National Library of Malaysia for 3 new publications and five (6) for Annual Report of DOE State.

PERKHIDMATAN RUJUKAN

Pada tahun 2024, perpustakaan telah merekodkan sebanyak 526 pertanyaan rujukan melalui emel, telefon dan perkhidmatan kaunter yang melibatkan bahan rujukan seperti Laporan EIA, Akta, buku panduan dan juga bahan koleksi atas talian. Jumlah pertanyaan rujukan merekodkan pengurangan sebanyak 20% berbanding tahun sebelumnya. Pertanyaan tertinggi yang direkodkan adalah pertanyaan berkaitan penggunaan bahan atas talian dan penggunaan portal baharu EDL. Pecahan adalah seperi berikut **Rajah 9.4**.

REFERENCE SERVICE

In year 2024, DOE library received a total of 526 reference inquiries via email, phone and counter services includes reference of EIA Reports, Acts, guidebooks and online collections. The data shows decreasing of 20% of inquiries. Most of the inquiries are on library new portal (EDL) and online collections. The breakdown is as follows **Figure 9.4**.



Rajah 9.4: Kaedah Pertanyaan Rujukan
Figure 9.4: Method of Enquiry

PERKHIDMATAN ATAS TALIAN

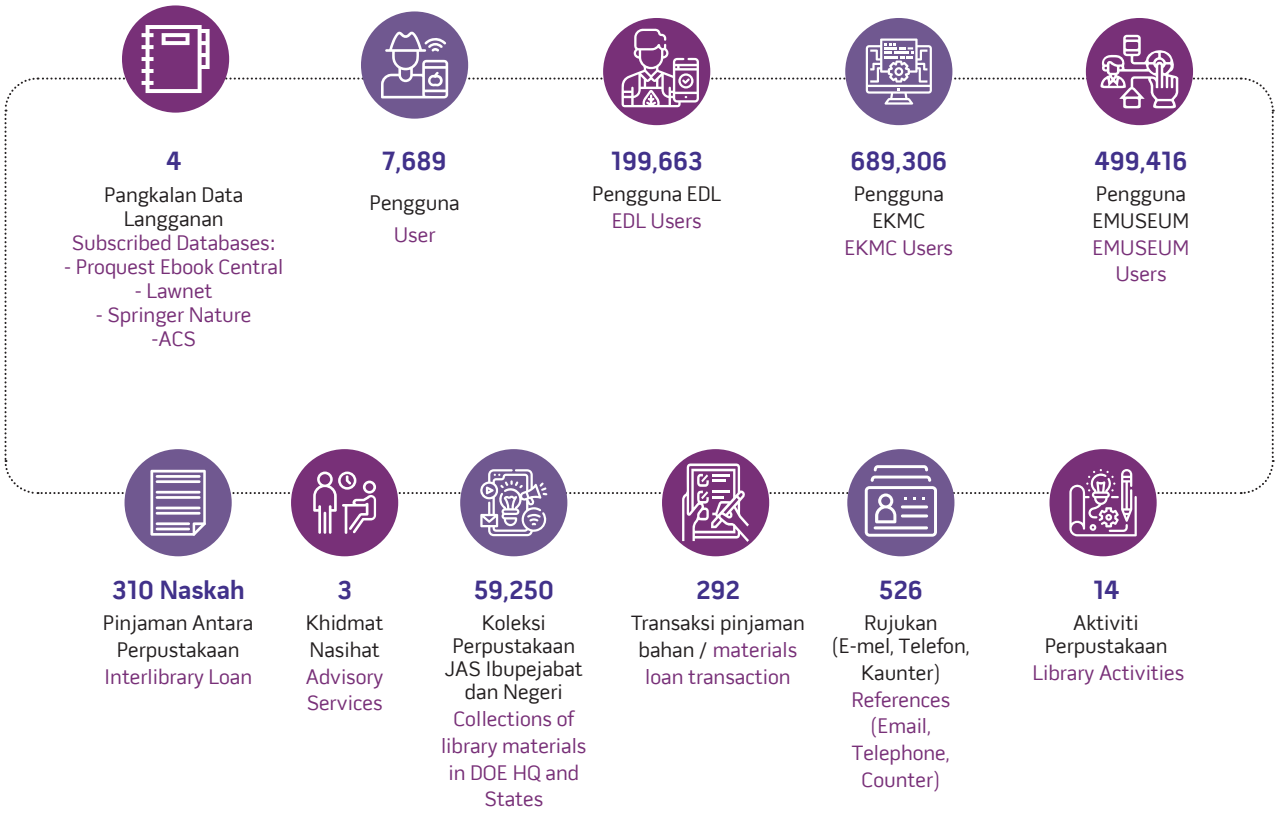
Perpustakaan JAS juga menyediakan Perkhidmatan Atas Talian yang terdiri daripada platfom repositori yang dibangunkan oleh JAS dan pangkalan data langganan serta akses percuma kepada pangkalan data U-Pustaka. Sehingga tahun 2024, perkhidmatan atas talian merupakan platfom pilihan bagi pencarian bahan dari pengguna perpustakaan. Bermula pada 12 Ogos 2024, penggunaan sepenuhnya portal perpustakaan 'Enviro Digital Library' (EDL) telah dimulakan dengan rekod penggunaan seperti **Jadual 9.1** dan **Rajah 9.5**

ONLINE SERVICES

DOE Library also provides Online Services consisting of repository platforms developed by the DOE and subscription databases also free access to the library database. In year 2024, Online Services was the most active resource widely used by library users. DOE library officially opens full access of Enviro Digital Library (EDL) for public and staffs starting from 12 August 2024 and the usage is show in **Table 9.1** and **Figure 9.5**

Jadual 9.1: Penggunaan Platfom Repositori Perpustakaan
Table 9.1: Usage of Library Repository Platform

PENGKALAN DATA DATABASE	PENGGUNA USER	TEMPOH PENGGUNAAN PERIOD OF USE (2016-2022)
Enviro Knowledge Management Centre (EKMC) Enviro Knowledge Management Centre (EKMC)	689,306	2016 - Julai 2024
Enviro Museum (EMUSEUM) Enviro Museum (EMUSEUM)	499,416	2016 - Julai 2024
Enviro Digital Library (EDL) Enviro Museum (EMUSEUM)	199,663	Ogos – Disember 2024



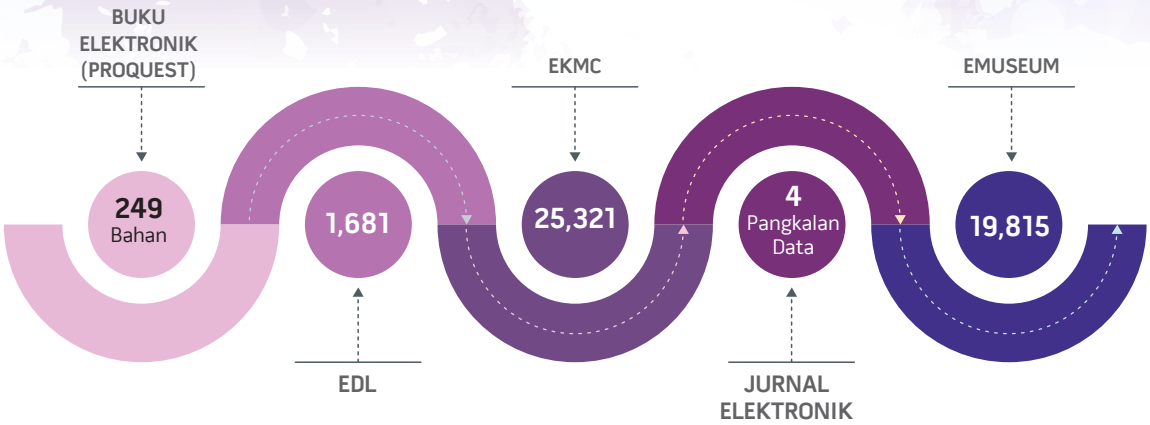
Rajah 9.5: Perkhidmatan dan Koleksi Perpustakaan
Figure 9.5: Library Collections and Service

Kandungan Maklumat Digital yang Tersedia

Sehingga 31 Disember 2024, jumlah kandungan maklumat digital Perpustakaan JAS adalah seperti **Rajah 9.6**:

Digital Information Content Available

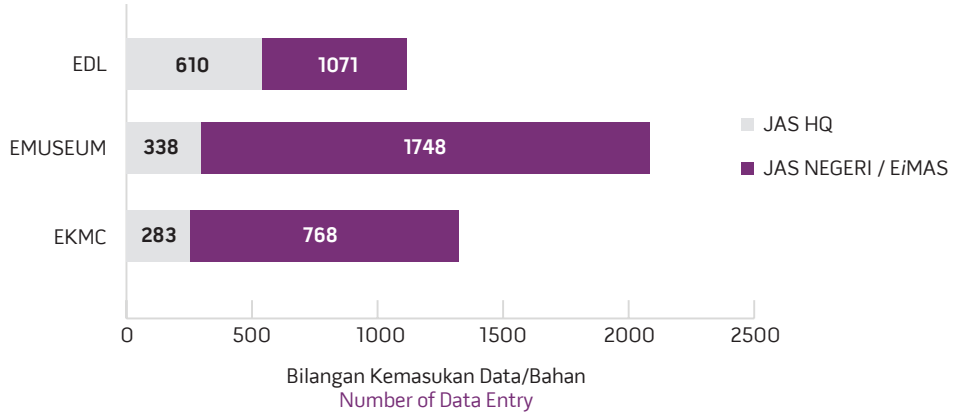
As of 31 December 2024, the total of information content at the DOE Library is as **Figure 9.6**:



Rajah 9.6: Maklumat Digital Perpustakaan JAS yang Tersedia
Figure 9.6: Available Digital Information Content of DOE Library

Platfom repositori maklumat digital JAS telah aktif digunakan sejak tahun 2016. Bagi meningkatkan perkhidmatan maklumat digital melalui platfom ini, perpustakaan JAS telah menaik taraf portal EKMC dan EMuseum menjadi satu pusat maklumat yang boleh mengakses keseluruhan koleksi kandungan digital, galeri gambar dan melakukan transaksi pinjaman buku (KOHA). Kandungan terkini bahan yang disimpan di portal EDL adalah sebanyak 50,002 bahan terbuka termasuk bahan baharu dan pindahan data bersih dari portal EKMC dan EMuseum. Kandungan terkini ini tidak termasuk bahan bertaraf SULIT (privacy) yang hanya boleh di akses oleh warga JAS sahaja yang masih dikekalkan di dalam database EKMC dan EMuseum. Usaha berterusan telah dilaksanakan bagi membangunkan koleksi digital yang disumbangkan oleh warga jabatan dan JAS negeri temasuk Eimas. Pencapaian tahunan kemasukan data ke platfom repositori maklumat JAS adalah seperti **Rajah 9.7**.

The DOE digital information repository platform has been actively used since 2016. To enhance digital information services through this platform, the DOE library has upgraded the EKMC and EMuseum portals to become an information centre that can access the entire collection of digital content, photo galleries, and book loan transactions (KOHA). The latest content of materials stored on the EDL portal is a total of 50,002 open materials including new materials and clean data transferred from the EKMC and Emuseum portals. This latest content does not include CONFIDENTIAL (privacy) material that can only be accessed by DOE staff which is still maintained in the EKMC and Emuseum databases. Continuous efforts have been made to develop digital collections contributed by state department and DOE staff including Eimas. The annual achievement of data entry into the DOE information repository platform is as **Figure 9.7**.



Rajah 9.7: Jumlah Keseluruhan Kemasukan Data/Bahan Tahun 2024 (EKMC,EMUSEUM dan EDL)
Figure 9.7: Overall Data Entry in 2024 (EKMC, EMUSEUM and EDL)

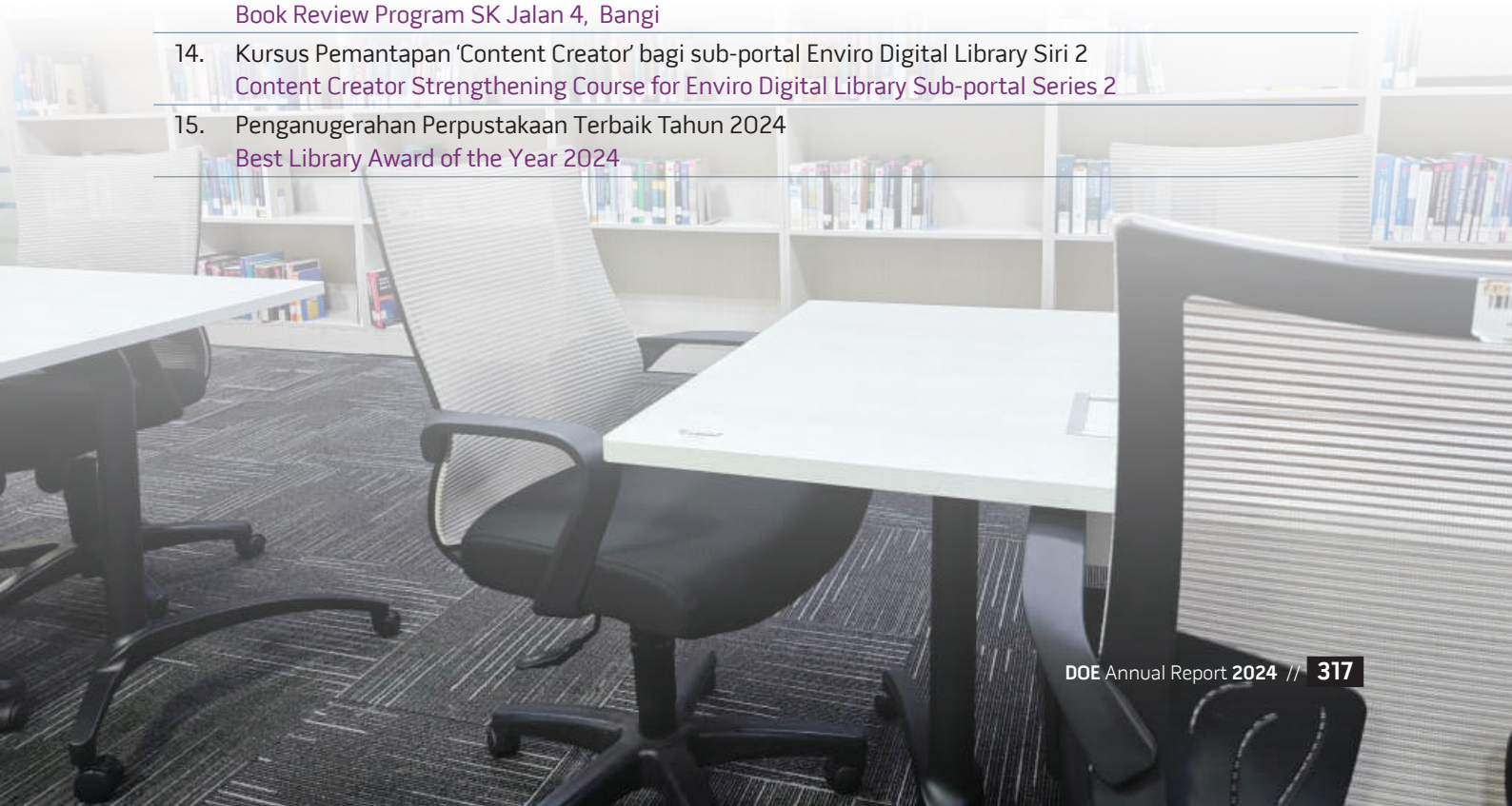
AKTIVITI GALAKAN MEMBACA 2024

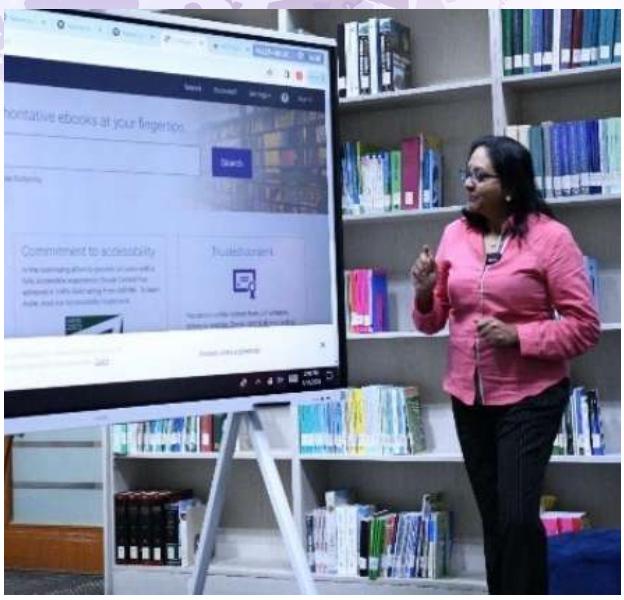
Pada tahun 2024, sebanyak lima belas (15) aktiviti telah dilaksanakan iaitu:

LIBRARY PROGRAMS AND ACTIVITIES 2024

In 2024, a total of fifteen (15) activities were implemented as follows:

1.	Bicara Intelek (Esplorasi Digital) Siri 1 Intellectual Talk (Digital Exploration) Series 1
2.	Bengkel Laman Sesawang dan Aplikasi Mobil (e-kiosk) Siri 2 Workshop on Website and Mobile Application (e-kiosk) Series 2
3.	Pelancaran Buku Koleksi Pantun Alam Sekitar Launch of the Environmental Poetry Collection Book
4.	Bengkel Semakan Laman Sesawang Website Review Workshop
5.	Lawatan Post-Naiktaraf Perpustakaan ke JAS Sabah Post-upgrade visit to Enviro Digital Library @DOE Sabah
6.	Lawatan Post-Naik Taraf Perpustakaan ke JAS Labuan Post-upgrade visit to Enviro Digital Library @DOE Labuan
7.	Kursus Pemantapan 'Content Creator' bagi sub-portal Enviro Digital Library Siri 1 Content Creator Strengthening Course for Enviro Digital Library Sub-portal Series 1
8.	Bicara Intelek Siri 2: Quran Hour Intellectual Talk Series 2: Quran Hour
9.	Jom Baca 10 Minit sempena Hari Bumi 2024 Let's Read 10 Minutes in conjunction with Earth Day 2024
10.	Lawatan Post-naiktaraf Perpustakaan ke JAS Johor Post-upgrade visit to Enviro Digital Library @DOE Johor
11.	Program Cuti Sekolah: Baca Bersama Tun Alia School Holiday Program: Read With Tun Alia
12.	Program Mewarna bersama UNEH SK Jalan 4, Bangi Workshop and Coloring Program with UNEH SK Jalan 4, Bangi
13.	Program Resensi Buku SK Jalan 4, Bangi Book Review Program SK Jalan 4, Bangi
14.	Kursus Pemantapan 'Content Creator' bagi sub-portal Enviro Digital Library Siri 2 Content Creator Strengthening Course for Enviro Digital Library Sub-portal Series 2
15.	Penganugerahan Perpustakaan Terbaik Tahun 2024 Best Library Award of the Year 2024








▲ Bicara Intelek (Eksplorasi Digital) Siri 1/2024
Intellectual Talk (Exploration Digital) Series 1/2024





▲ Bengkel Latihan Laman Sesawang dan Aplikasi Mobil (EKIOSK) Siri 2
Website and Mobile Application Training Workshop (EKIOSK) Series 2



▲ Pelancaran Buku Koleksi Pantun Alam Sekitar
Launch of Environmental Poem Collection Book



▲ Bengkel Semakan Laman Sesawang
Website Review Workshop











▲ Lawatan Post-Naiktaraf Perpustakaan ke JAS Sabah
Post-Upgrade visit to Enviro Digital Library @DOE Sabah



▲ Lawatan Post-Naiktaraf Perpustakaan ke JAS Labuan
Post-Upgrade visit to Enviro Digital Library @DOE Labuan



▲ Kursus Pemantapan 'Content Creator' bagi sub-portal Enviro Digital Library Siri 2
Content Creator Strengthening Course for Enviro Digital Library Sub-portal Series 2









▲ Program Bicara Intelek Siri 2: Quran Hour
Intellectual Talk Program Series 2: Quran Hour

















▲ Lawatan Post-naiktaraf Perpustakaan ke JAS Johor / Post-upgrade visit to Enviro Digital Library @DOE Johor













▲ Program Cuti Sekolah: Baca Bersama Tun Alia / School Holiday Program: Read With Tun Alia



▸ Bengkel dan Pertandingan Mewarna bersama UNEH, Sekolah Jalan 4, Bangi
Workshop and Coloring Program with UNEH SK Jalan 4, Bangi



▴ Program Resensi Buku SK Jalan 4, Bangi / Book Review Program SK Jalan 4, Bangi













▲ Kursus Pemantapan 'Content Creator' bagi sub-portal Enviro Digital Library Siri 2
Content Creator Strengthening Course for Enviro Digital Library Sub-portal Series 2











▸ Kursus Pemantapan 'Content Creator' bagi sub-portal Enviro Digital Library Siri 2
Content Creator Strengthening Course for Enviro Digital Library Sub-portal Series 2



▲ Lawatan Sambil Belajar dari Institut Pendidikan Guru Kampus Pendidikan Islam, Bangi / Study Tour from the Institute of Teacher Education, Islamic Education, Bangi Campus





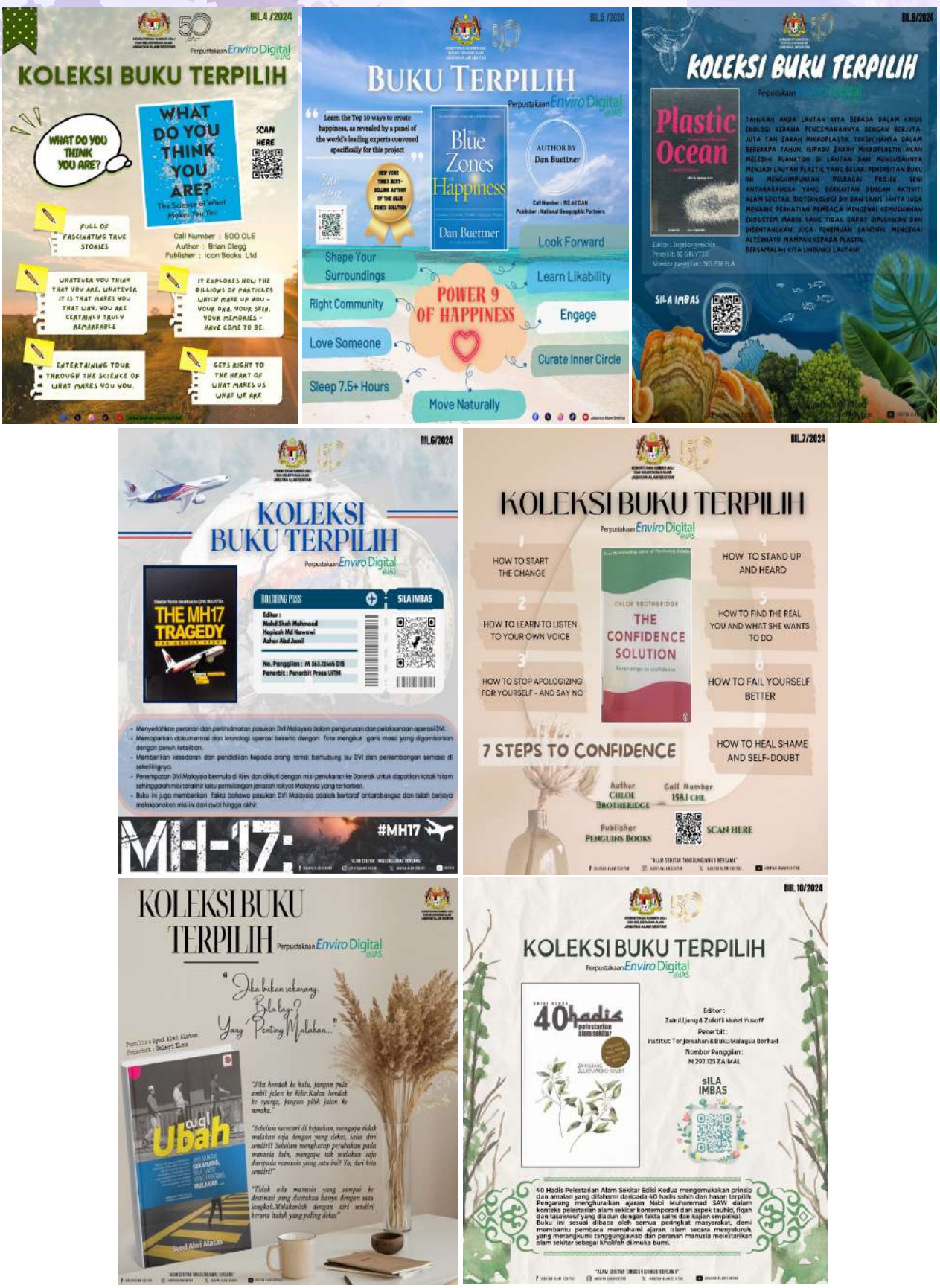








▲ Hebahan Koleksi Digital / Digital Collection Announcement



▲ Hebahan Koleksi Buku Terpilih / Selected Book Collection Announcement



▲ Hebahan e-bookTerpilih
Selected e-Book Collection Announcement











▲ Penganugerahan Perpustakaan Terbaik Tahun 2024
Best Library of the Year 2024 Award

Jabatan Alam Sekitar
Kementerian Sumber Asli dan Kelestarian Alam

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