



KEMENTERIAN EKONOMI
JABATAN PERANGKAAN MALAYSIA

KOMPENDIUM PERANGKAAN ALAM SEKITAR *COMPENDIUM OF ENVIRONMENT STATISTICS*

2025

JABATAN PERANGKAAN MALAYSIA
DEPARTMENT OF STATISTICS MALAYSIA



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Pemakluman

Malaysia buat julung kalinya telah menduduki tangga pertama (1) di peringkat global dalam laporan dwi-tahunan *Open Data Inventory* (ODIN) 2024/25 yang dikeluarkan oleh *Open Data Watch* (ODW), mengatasi 197 negara lain. Pencapaian ini merupakan lonjakan ketara daripada kedudukan ke-67 dalam penilaian ODIN 2022/23.

OpenDOSM NextGen adalah medium yang menyediakan katalog data dan visualisasi bagi memudahkan pengguna menganalisis pelbagai data dan boleh diakses melalui portal <https://open.dosm.gov.my>.

Announcement

Malaysia, for the first time, ranked as number one (1) globally in the biennial Open Data Inventory (ODIN) 2024/25 report released by Open Data Watch (ODW), surpassing 197 other countries. This achievement marks a significant leap from its 67th position in the ODIN 2022/23 assessment.

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62514 Putrajaya,

MALAYSIA

Tel.	:	03-8885 7000
Faks	:	03-8888 9248
Portal	:	https://www.dosm.gov.my
Facebook / X / Instagram/ YouTube	:	StatsMalaysia
Emel / <i>Email</i>	:	info@dosm.gov.my (pertanyaan umum/ <i>general enquiries</i>) data@dosm.gov.my (pertanyaan & permintaan data/ <i>data request & enquiries</i>)

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Tiada bahagian daripada terbitan ini boleh diterbitkan semula, disimpan untuk pengeluaran atau ditukar dalam apa-apa bentuk atau alat apa jua pun kecuali setelah mendapat kebenaran daripada Jabatan Perangkaan Malaysia. Pengguna yang mengeluarkan sebarang maklumat dari terbitan ini sama ada yang asal atau diolah semula hendaklah meletakkan kenyataan berikut:

“Sumber: Jabatan Perangkaan Malaysia”

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Kompendium Perangkaan Alam Sekitar, Malaysia 2025 memaparkan statistik alam sekitar yang meliputi enam komponen iaitu Keadaan dan Kualiti Alam Sekitar; Sumber Alam Sekitar dan Kegunaannya; Sisa; Kejadian Ekstrem dan Bencana; Penempatan Penduduk dan Kesihatan Persekitaran; dan Penglibatan, Pengurusan dan Perlindungan Alam Sekitar. Penyusunan statistik ini meliputi maklumat dan keadaan alam sekitar, impak aktiviti manusia ke atas alam sekitar dan langkah yang diambil bagi mengurangkan impak tersebut.

Penerbitan ini menyediakan statistik alam sekitar yang boleh digunakan oleh agensi kerajaan, sektor swasta, ahli akademik serta individu sebagai rujukan dalam menjalankan penyelidikan dan penganalisan. Rangka kerja yang digunakan dalam penerbitan ini adalah berdasarkan *Framework for the Development of Environment Statistics (FDES), United Nations, 2013*.

Penerbitan ini mengandungi enam bahagian. Bahagian pertama membentangkan infografik statistik alam sekitar, diikuti dengan ringkasan penemuan mengikut komponen di bahagian kedua. Bahagian ketiga pula memuatkan jadual terperinci mengenai statistik alam sekitar. Perbandingan indikator terpilih antara negara tersedia di bahagian keempat. Manakala lampiran dan glosari disertakan di bahagian kelima dan keenam bagi membantu pengguna memahami statistik dan terma alam sekitar yang digunakan.

Jabatan merakamkan setinggi-tinggi penghargaan atas kerjasama dan sumbangan yang diberikan oleh semua pihak dalam menjayakan penerbitan ini. Setiap maklum balas dan cadangan untuk penambahbaikan penerbitan ini pada masa akan datang amatlah dihargai.

DATO' SRI DR. MOHD UZIR MAHIDIN

Ketua Perangkawan Malaysia

Disember 2025

The Compendium of Environment Statistics, Malaysia 2025 presents statistics on six environmental components namely Environmental Conditions and Quality; Environmental Resources and Their Use; Residuals; Extreme Events and Disasters; Human Settlements and Environmental Health; and Environmental Protection, Management and Engagement. The compilation of these statistics includes environmental information and conditions, impacts of human activities on the environment and actions taken to minimise the impact.

This publication provides environment statistics that can be used by government agencies, private sectors, academicians and individuals as a reference to conduct research and analysis. The framework used in this publication is based on the Framework for the Development of Environment Statistics (FDES) United Nations, 2013.

This publication consists of six parts. The first part focused on the infographics of environment statistics, followed by summary of findings by component in the second part. The third part contains detailed tables on environment statistics. A comparison of selected indicators between countries are available in the fourth part. Meanwhile, appendices and glossary are covered in the fifth and sixth parts are to facilitate users in understanding the statistics and environment terms used.

The Department gratefully acknowledges the co-operation and contribution rendered by all parties in making this publication a success. Every feedback and suggestion towards improving future publications is highly appreciated.

DATO' SRI DR. MOHD UZIR MAHIDIN

Chief Statistician Malaysia

December 2025

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INFOGRAFIK

INFOGRAPHICS



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KOMPENDIUM PERANGKAAN ALAM SEKITAR, MALAYSIA, 2025

Hujan (mm)
 2024: 1,704.3 - 5,624.0
 2023: 1,429.2 - 5,213.6



Pendaratan ikan laut ('000 tan metrik)
 2024: 1,392.1
 2023: 1,270.3

Keluasan berhutan (Hektar)
 2022: 17,967,520
 2021: 17,979,103



Bekalan air mentah diabstrak dari sungai (JLH)
 2024: 16,867
 2023: 16,356

Bekalan air mentah diabstrak dari empangan (JLH)
 2024: 3,639
 2023: 3,523



Kadar pertumbuhan penduduk tahunan (%)
 2025: 0.5
 2024: 1.9

Rizab minyak mentah dan kondensat (Bilion tong)
 2023^P: 4.316
 2022: 4.486



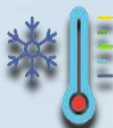
Bekalan air mentah diabstrak dari bawah tanah (JLH)
 2024: 402
 2023: 395

Jumlah pengeluaran akuakultur ('000 tan metrik)
 2024: 511.9
 2023: 506.8



Penduduk (Juta)
 2025^P: 34,231.7
 2024: 34,052.1

Purata suhu minimum dan maksimum (°C)
 2024: 16.4 - 34.0
 2023: 16.0 - 33.1



Buangan klinikal ('000 tan metrik)
 2024: 46.7
 2023: 41.8

Buangan terjadual ('000 tan metrik)
 2024: 5,379.0
 2023: 5,841.6



Kadar kitar semula
 2024: 37.9
 2023: 35.4

Purata kelembapan relatif (%)
 2024: 72.8 - 87.8
 2023: 75.1 - 90.2



Rizab gas asli (TSCF)
 2023^P: 80.8
 2022^r: 76.2

Nota :

JLH : Juta liter sehari

P : Awalan

TSCF : Trilion kaki padu piawai

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Sumber: Kompndium Perangkaan Alam Sekitar, 2025
 Jabatan Perangkaan Malaysia (DOSM)





MINISTRY OF ECONOMY
DEPARTMENT OF STATISTICS MALAYSIA

COMPENDIUM OF ENVIRONMENT STATISTICS, MALAYSIA, 2025

Rainfall (mm)

2024: 1,704.3 - 5,624.0

2023: 1,429.2 - 5,213.6



Landing of marine fish ('000 metric tonnes)

2024: 1,392.1

2023: 1,270.3

Forested area (Hectares)

2022: 17,967,520

2021: 17,979,103



Supply of abstracted raw water from rivers (MLD)

2024: 16,867

2023: 16,356

Supply of abstracted raw water from storage dams (MLD)

2024: 3,639

2023: 3,523



Annual population growth rate (%)

2025: 0.5

2024: 1.9

Reserves of crude oil and condensates (billion barrels)

2023^P: 4.316

2022 : 4.486



Supply of abstracted raw water from Groundwater (MLD)

2024: 402

2023: 395

Total of aquaculture production ('000 metric tonnes)

2024: 511.9

2023: 506.8



Population (Million)

2025^P: 34,231.7

2024 : 34,052.1

Minimum & maximum mean temperature (°C)

2024: 16.4 - 34.0

2023: 16.0 - 33.1



Clinical wastes ('000 metric tonnes)

2024: 46.7

2023: 41.8

Scheduled wastes ('000 metric tonnes)

2024: 5,379.0

2023: 5,841.6



Recycle rate

2024: 37.9

2023: 35.4

Mean relative humidity (%)

2024: 72.8 - 87.8

2023: 75.1 - 90.2



Associated natural gas (TSCF)

2023^P: 80.8

2022^P: 76.2

Notes :

MLD : Million litres per day

P : Preliminary

TSCF : Trillions standard cubic feet

Source: Compendium of Environment Statistics, 2025
Department of Statistics Malaysia (DOSM)

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RINGKASAN PENEMUAN

SUMMARY OF FINDINGS



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KOMPONEN 1

KEADAAN DAN KUALITI ALAM SEKITAR

Kualiti Alam Sekitar

- Habuk halus (PM_{10} & $PM_{2.5}$)
- Ozon permukaan bumi (O_3)
- Karbon monoksida (CO)
- Sulfur dioksida (SO_2)
- Nitrogen dioksida (NO_2)

Status Kualiti Udara

- Indeks Pencemaran Udara (IPU)

Kualiti Air Sungai

Keadaan Fizikal

- Purata suhu, hujan, purata kelembapan relatif & kilat



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PENGENALAN

Kompendium Perangkaan Alam Sekitar (KPAS), Malaysia 2025 memaparkan statistik alam sekitar mengikut komponen iaitu Keadaan dan Kualiti Alam Sekitar; Sumber Alam Sekitar dan Kegunaannya; Sisa; Kejadian Ekstrem dan Bencana; Penempatan Penduduk dan Kesihatan Persekitaran; dan Penglibatan, Pengurusan dan Perlindungan Alam Sekitar.

Rangka kerja yang digunakan dalam penerbitan ini adalah berdasarkan *Framework for the Development of Environment Statistics* (FDES), *United Nations, 2013*. [Paparan 1.1]

Penerbitan ini mengandungi 180 jadual yang dibahagikan kepada enam komponen.

Paparan 1.1: Komponen FDES 2013



1.1: Kualiti Alam Sekitar

Bahan pencemar udara merupakan bahan kimia di udara yang boleh membahayakan manusia dan alam sekitar. Bahan pencemar boleh berbentuk partikel pepejal, titisan cecair atau gas. Terdapat enam bahan pencemar udara utama iaitu Ozon Permukaan Bumi (O_3), Karbon Monoksida (CO), Sulfur Dioksida (SO_2), Nitrogen Dioksida (NO_2) dan Habuk Halus (PM_{10} & $PM_{2.5}$). Pencemaran udara berlaku apabila bahan pencemar ini hadir di atmosfera. Punca dan kesan bahan pencemar udara ditunjukkan seperti di **Lampiran 2**.

Habuk Halus (PM_{10} & $PM_{2.5}$)

Habuk Halus (PM_{10} & $PM_{2.5}$) adalah istilah yang digunakan bagi partikel terampai berukuran kurang daripada diameter 10 dan 2.5 mikron. Partikel boleh berbentuk pepejal atau cecair dan ia termasuk aerosol, debu, asap dan debunga. Pembebasan habuk halus daripada kenderaan bermotor, penjanaan kuasa dan haba, proses perindustrian dan aktiviti pembakaran terbuka yang akan membawa kepada pencemaran udara serta mengancam kesihatan manusia dan tumbuhan.

Trend purata bulanan kepekatan $PM_{2.5}$ di udara pada 2024 menunjukkan enam daripada 12 bulan meningkat, iaitu pada Februari (8.1%), Mac (5.0%), Julai (0.4%), Ogos (8.5%), November (15.0%) dan Disember (17.9%) berbanding 2023.

Sebaliknya, terdapat penurunan ketara pada April (-25.7%), September (-23.6%) dan Oktober (-31.0%). **[Carta 1.1]**

Manakala trend purata bulanan kepekatan PM_{10} di udara pada 2024 menunjukkan penurunan pada lapan daripada 12 bulan, iaitu Januari (-2.5%), April (-14.8%), Mei (-2.7%), Jun (-8.6%), Julai (-9.6%), Ogos (-6.7%), September (-14.1%) dan Oktober (-22.5%) berbanding 2023. Manakala, kenaikan dua digit direkodkan pada bulan November (12.0%). **[Carta 1.2]**

Ozon permukaan bumi (O_3)

O_3 adalah bahan pencemar yang terjadi akibat daripada reaksi kimia dalam udara di antara sebatian organik meruap (VOC_s) dan nitrogen oksida (NO_x). VOC_s dan NO_x ini dihasilkan oleh kenderaan bermotor dan industri.

Trend purata bulanan kepekatan O_3 di udara pada 2024 menunjukkan penurunan pada bulan Januari (-16.7%), Februari (-17.6%), Mac (-15.8%), April (-5.3%) dan Oktober (-5.9%) berbanding 2023. Sebaliknya, Julai, Ogos dan November masing-masing mencatatkan kenaikan dua digit iaitu masing-masing sebanyak 20.0 peratus, 13.3 peratus dan 14.3 peratus. **[Carta 1.3]**

Karbon Monoksida (CO)

CO merupakan gas yang tidak berwarna, tidak berbau dan beracun dihasilkan dari punca pembakaran bahan bakar fosil seperti asap kenderaan, proses perindustrian dan aktiviti pembakaran terbuka.

Trend purata bulanan kepekatan CO di udara pada 2024 secara keseluruhan mencatatkan penurunan kecuali pada bulan Februari (2.1%), Mac (12.6%) dan Disember (0.2%) berbanding tahun sebelumnya. **[Carta 1.4]**

Sulfur Dioksida (SO₂)

SO₂ adalah sejenis gas reaktif yang mudah larut dalam air, tidak berwarna dan mempunyai bau yang tidak menyenangkan. Pendedahan yang berlebihan terhadap kepekatan tinggi SO₂ di udara menyebabkan kerosakan sistem pernafasan dan masalah komplikasi kardiovaskular.

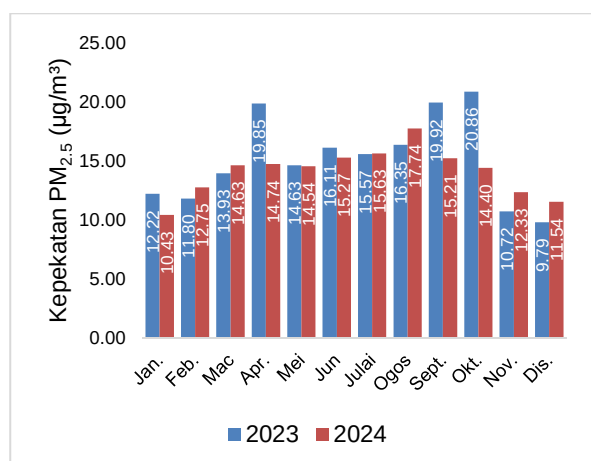
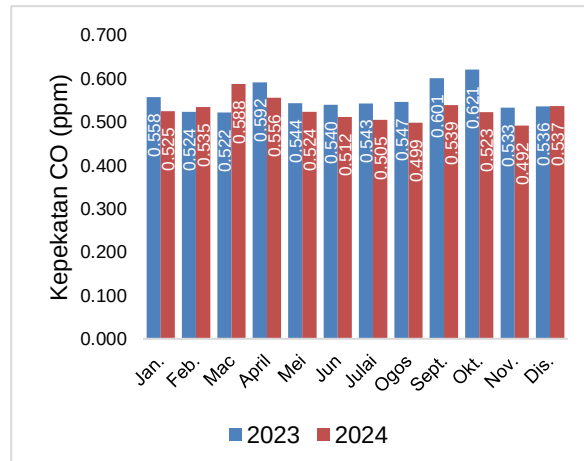
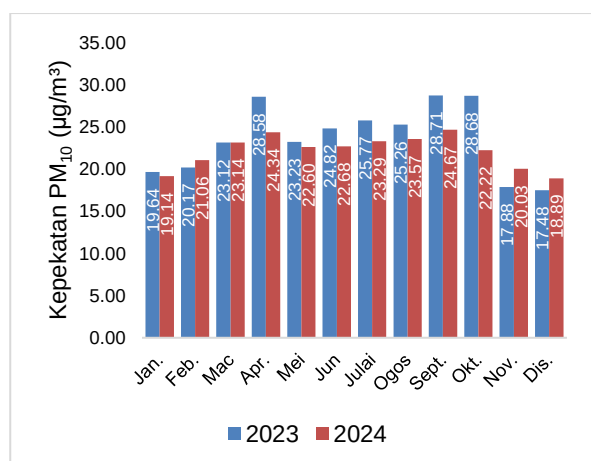
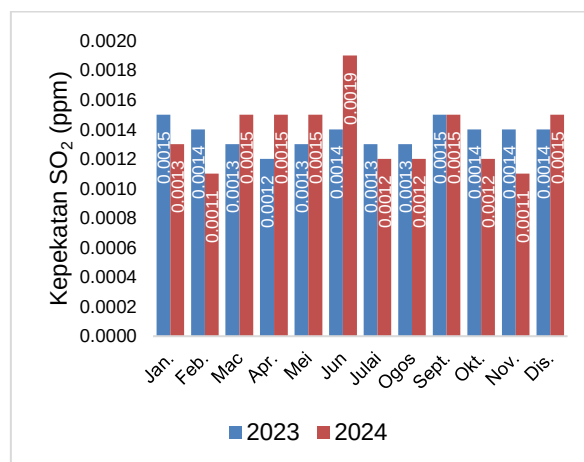
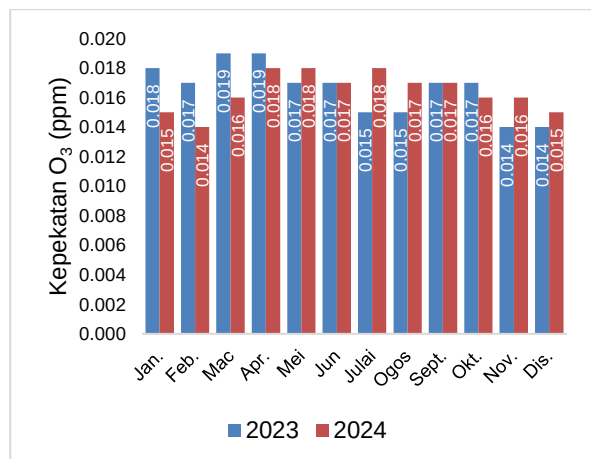
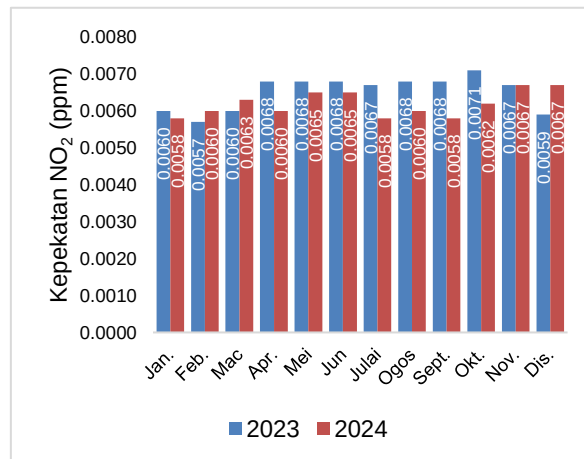
Trend purata bulanan kepekatan SO₂ di udara pada 2024 mencatatkan kenaikan pada enam daripada 12 bulan, dengan bulan Mac (15.4%), April (25.0%), Mei (15.4%) dan Jun (35.7%) mencatatkan kenaikan dua digit. Sebaliknya, bulan Januari (-13.3%), Februari (-21.4%), Oktober (-14.3%) dan November (-21.4%) mencatatkan penurunan dua digit. **[Carta 1.5]**

Nitrogen Dioksida (NO₂)

NO₂ terbentuk di persekitaran udara melalui pengoksidaan Nitrogen Monoksida (NO). Gas bertoksik berwarna merah keperangan ini mempunyai bau yang kuat dan tajam.

Trend purata bulanan kepekatan NO₂ pada 2024 menunjukkan peningkatan hanya pada tiga bulan iaitu Februari (5.3%), Mac (5.0%) dan Disember (13.6%). Sementara itu, November tidak merekodkan sebarang perubahan pada 2024 berbanding tahun sebelumnya. **[Carta 1.6]**



Carta 1.1: Purata bulanan kepekatan PM_{2.5} di udara, Malaysia, 2023 dan 2024**Carta 1.4: Purata bulanan kepekatan CO di udara, Malaysia, 2023 dan 2024****Carta 1.2: Purata bulanan kepekatan PM₁₀ di udara, Malaysia, 2023 dan 2024****Carta 1.5: Purata bulanan kepekatan SO₂ di udara, Malaysia, 2023 dan 2024****Carta 1.3: Purata bulanan kepekatan O₃ di udara, Malaysia, 2023 dan 2024****Carta 1.6: Purata bulanan kepekatan NO₂ di udara, Malaysia, 2021 dan 2022**

Sumber: Jabatan Alam Sekitar

1.2: Status Kualiti Udara

Indeks Pencemaran Udara (IPU)

Jabatan Alam Sekitar (JAS) mengawal kualiti udara negara melalui 65 stesen pengawasan yang ditempatkan di seluruh negara bagi mengawasi dan mengesan sebarang perubahan kualiti udara yang boleh memberi kesan negatif kepada kesihatan manusia dan alam sekitar.

Status kualiti udara di Malaysia dilaporkan dalam Indeks Pencemaran Udara (IPU). Bahan pencemar udara yang digunakan untuk mengira IPU adalah Ozon (O_3), Karbon Monoksida (CO), Nitrogen Dioksida (NO_2), Sulfur Dioksida (SO_2) dan Habuk Halus bersaiz kurang dari 10 mikron (PM_{10}) dan bersaiz kurang dari 2.5 mikron ($PM_{2.5}$).

Paparan 1.2: Status Indeks Pencemaran Udara (IPU)

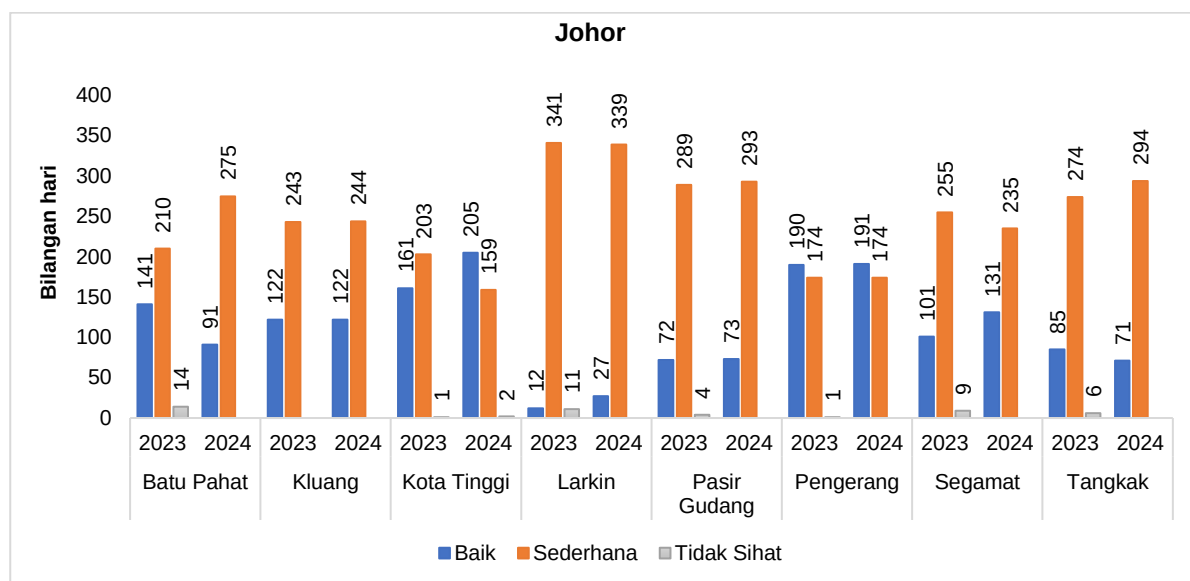
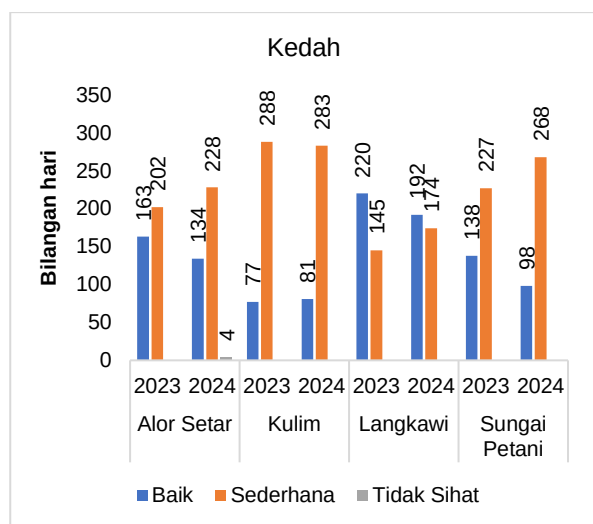
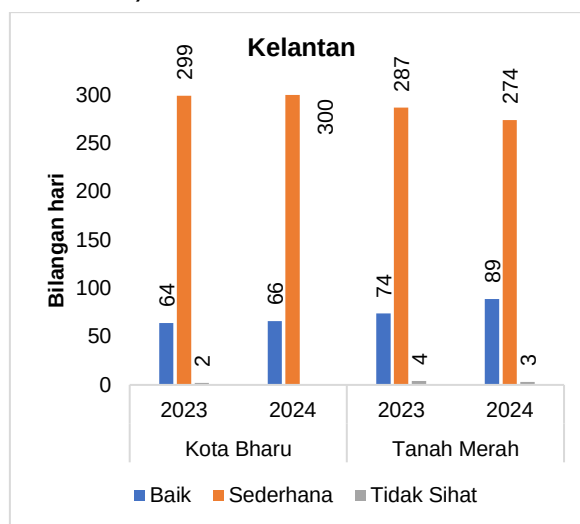
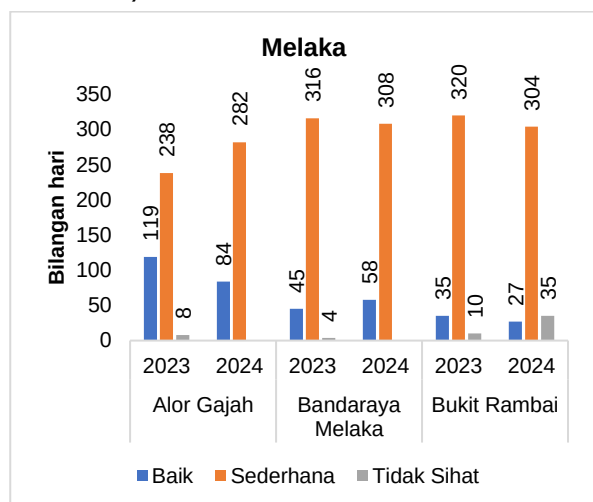
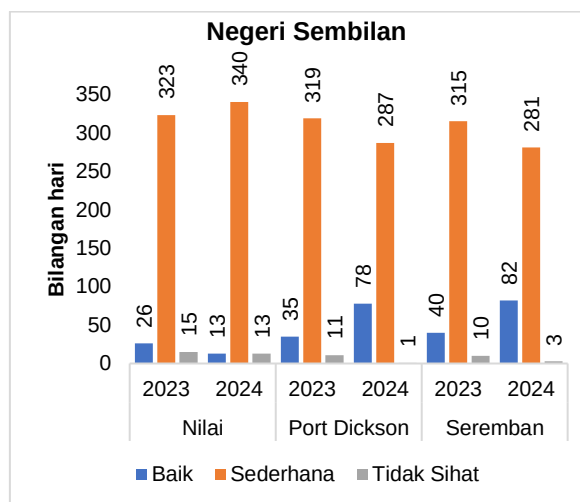
IPU	Status IPU
0-50	Baik
51-100	Sederhana
101-200	Tidak Sihat
201-300	Sangat Tidak Sihat
>300	Berbahaya

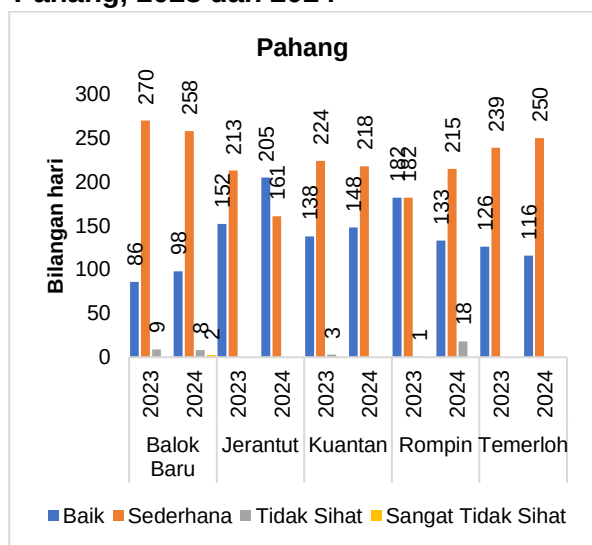
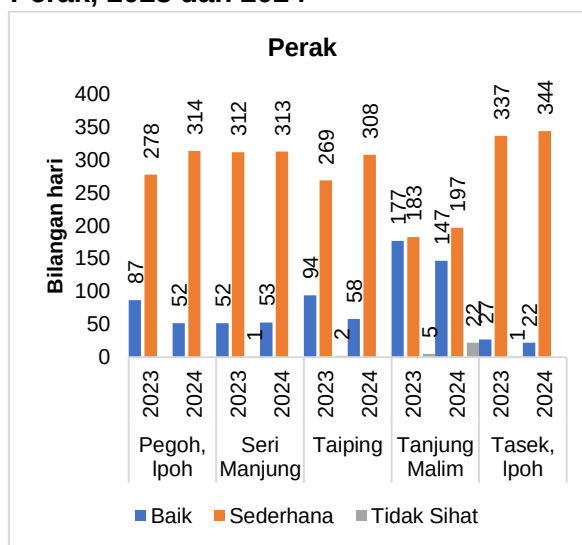
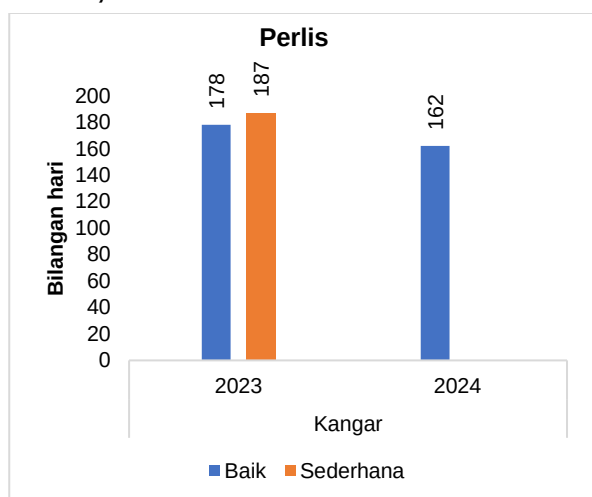
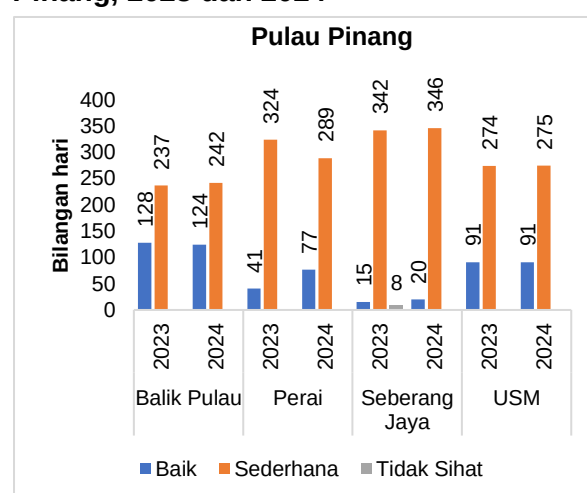
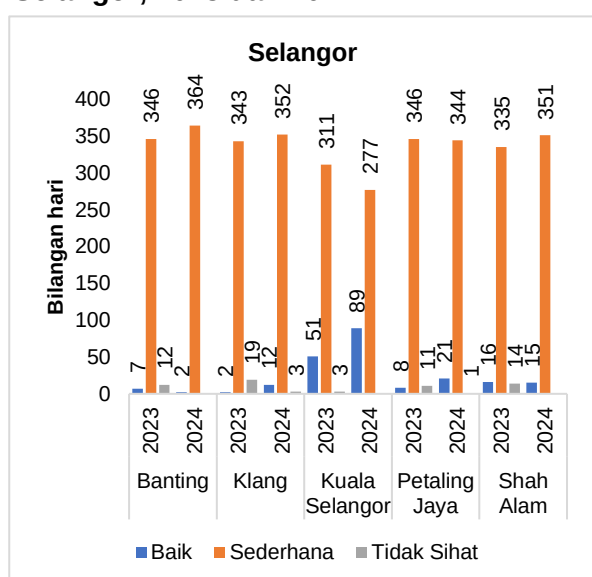
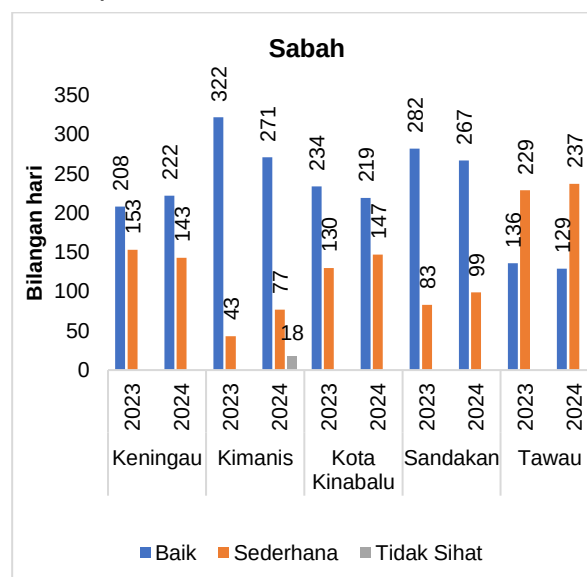
Berdasarkan garis panduan yang telah dikeluarkan oleh JAS, terdapat lima peringkat IPU dalam menggambarkan kualiti udara di Malaysia iaitu baik, sederhana, tidak sihat, sangat tidak sihat dan berbahaya. **Lampiran 3** menerangkan perbandingan nilai IPU dengan tahap pencemaran dan kawalan kesihatan.

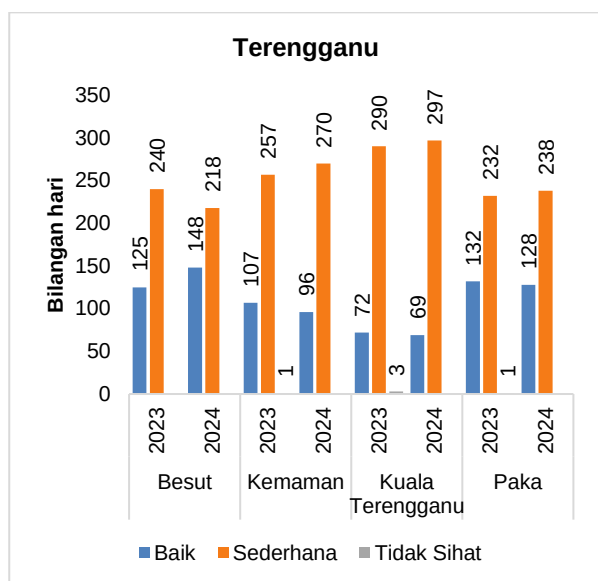
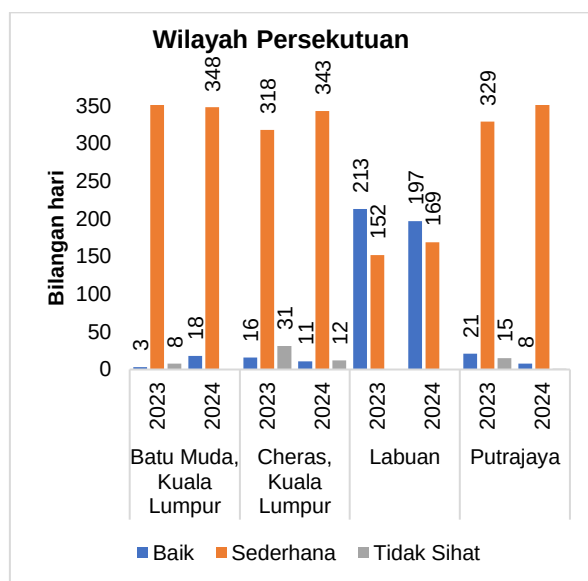
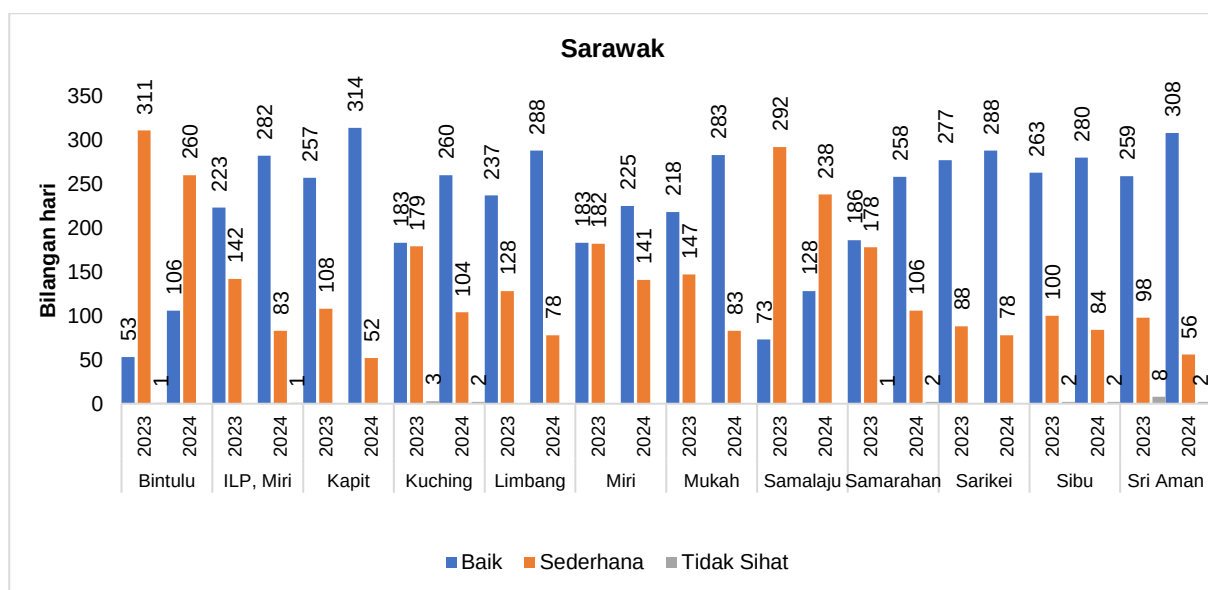
Malaysia secara keseluruhannya merekodkan kualiti udara berstatus “baik” dan “sederhana” bagi 2024. Stesen Kapit mencatatkan bilangan hari tertinggi (314 hari) kualiti udara berstatus “baik” pada 2024 berbanding 322 hari tahun sebelumnya (stesen Kimanis).

Bacaan IPU menunjukkan peningkatan dalam bilangan hari dengan kualiti udara yang “baik” terutamanya di bandar-bandar utama di seluruh negara disebabkan pelepasan bahan pencemar ke udara yang lebih rendah seperti asap kenderaan bermotor, pelepasan asap cerobong industri dan aktiviti pembakaran terbuka.

[Carta 1.7 – Carta 1.20]

Carta 1.7: Status kualiti udara¹, Johor, 2023 dan 2024**Carta 1.8: Status kualiti udara¹, Kedah, 2023 dan 2024****Carta 1.9: Status kualiti udara¹, Kelantan, 2023 dan 2024****Carta 1.10: Status kualiti udara¹, Melaka, 2023 dan 2024****Carta 1.11: Status kualiti udara¹, Negeri Sembilan, 2023 dan 2024**¹Bacaan status kualiti udara berdasarkan bacaan maksimum harian

Carta 1.12: Status kualiti udara¹, Pahang, 2023 dan 2024**Carta 1.13: Status kualiti udara¹, Perak, 2023 dan 2024****Carta 1.14: Status kualiti udara¹, Perlis, 2023 dan 2024****Carta 1.15: Status kualiti udara¹, Pulau Pinang, 2023 dan 2024****Carta 1.16: Status kualiti udara¹, Selangor, 2023 dan 2024****Carta 1.17: Status kualiti udara¹, Sabah, 2023 dan 2024**¹Bacaan status kualiti udara berdasarkan bacaan maksimum harian

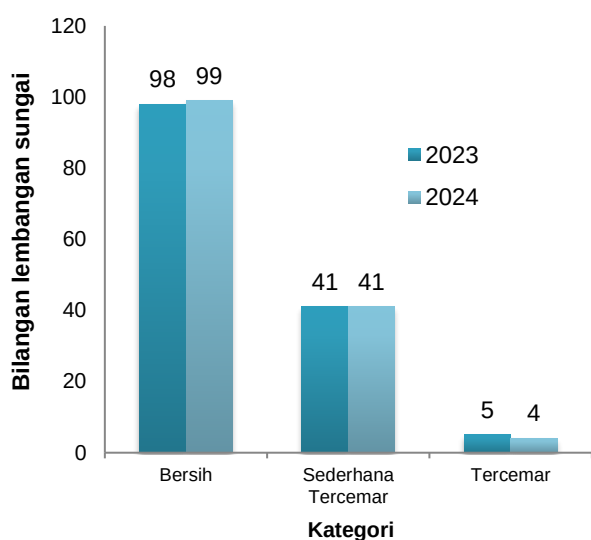
Carta 1.18: Status kualiti udara¹, Terengganu, 2023 dan 2024Carta 1.19: Status kualiti udara¹, Wilayah Persekutuan, 2023 dan 2024Carta 1.20: Status kualiti udara¹, Sarawak, 2023 dan 2024¹Bacaan status kualiti udara berdasarkan bacaan maksimum harian

Sumber: Jabatan Alam Sekitar

1.3 Kualiti Air Sungai

Hasil pemantauan Jabatan Alam Sekitar (JAS) terhadap 144 lembangan sungai pada 2024, menunjukkan 99 (68.7%) lembangan sungai berada dalam kategori “bersih” diikuti 41 lembangan sungai (28.5%) kategori “sederhana tercemar” dan 4 lembangan sungai (2.8%) kategori “tercemar” berbanding 2021. [Carta 1.21]

Carta 1.21: Status kualiti sungai mengikut kategori, Malaysia, 2021 dan 2022



Status kualiti air sungai di Malaysia diukur berdasarkan tiga bahan pencemar utama iaitu *Ammoniacal Nitrogen* (NH₃-N), *Biochemical Oxygen Demand* (BOD₅) dan *Suspended Solids* (SS). Daripada 144 lembangan sungai, bilangan lembangan sungai yang berkategori “bersih” berdasarkan NH₃-N dan SS masing-masing meningkat dari 45 kepada 61; dan 117 kepada 122 lembangan sungai manakala BOD₅ menurun dari 121 kepada 116 berbanding tahun sebelumnya. [Jadual 1.1]

Jadual 1.1: Status kualiti sungai berdasarkan pencemar utama Malaysia, 2023 dan 2024

Tahun	Jumlah lembangan sungai yang diawasi	NH ₃ -N			BOD ₅			SS		
		B	ST	T	B	ST	T	B	ST	T
2024	144	61	45	38	116	16	12	122	10	12
2023	144	45	58	41	121	12	11	117	10	17

B-Bersih ST-Sederhana Tercemar T-Tercemar

Sumber: Jabatan Alam Sekitar

1.4: Keadaan Fizikal

Malaysia terletak di zon khatulistiwa dan mengalami iklim panas dan lembap. Pada amnya, ia mempunyai suhu seragam, kelembapan tinggi dan hujan yang banyak. Tiupan angin di Malaysia pada amnya lemah dan terdapat perubahan bertempoh dalam corak tiupan angin. Berdasarkan kepada perubahan ini, empat musim boleh dibezakan iaitu monsun timur laut (November-Mac), monsun barat daya (Mei-September) dan dua musim peralihan monsun (Mac-Mei & Oktober-November) yang lebih pendek¹.

1.4.1 Purata suhu, hujan, purata kelembapan relatif dan kilat

Purata suhu

Sepanjang 2024, purata suhu tahunan di Malaysia adalah di antara 16.4°C hingga 34.0°C. Purata suhu tertinggi pada 2024 direkodkan di stesen Chuping (34.0°C), meningkat 0.9°C berbanding 33.1°C yang dilaporkan di stesen Temerloh pada 2023. Manakala, stesen Cameron Highlands merekodkan purata suhu terendah iaitu 16.4°C berbanding 16.0°C pada 2023.

Hujan

Stesen Kapit merekodkan hujan tahunan tertinggi pada 2024 iaitu 5,624.0 mm berbanding tahun sebelumnya (2023: Mulu;

5,213.6 mm). Namun begitu, stesen Kuala Pilah pula mencatatkan hujan tahunan terendah iaitu 1,704.3 mm berbanding tahun sebelumnya 1,429.2 mm (stesen Keningau).

Stesen Kapit mencatatkan bilangan hari hujan tertinggi pada 2024 dengan 273 hari berbanding 271 hari (stesen Mulu) yang dicatatkan pada 2023. Sementara itu, stesen Kota Bharu pula mencatatkan jumlah hari hujan terendah iaitu 144 hari pada 2024 berbanding 160 hari (stesen Kuala Pilah) pada 2023.

Kilat

Stesen KLIA, Sepang mencatatkan bilangan hari kilat tertinggi dengan 312 hari berbanding 317 hari pada 2023. Manakala, stesen Keningau dan Sri Aman masing-masing mencatatkan bilangan hari kilat terendah (satu hari) pada 2024 dan 2023.

Purata kelembapan relative

Purata kelembapan relatif di Malaysia pada 2024 adalah di antara 72.8 peratus (stesen Bayan Lepas) dan 87.8 peratus (stesen Cameron Highlands) berbanding 2023 iaitu di antara 75.1 peratus (stesen Bayan Lepas) dan 90.2 peratus (stesen Cameron Highlands). **[Paparan 1.3]**

¹ Portal Jabatan Meteorologi Malaysia, www.met.gov.my

Paparan 1.3: Ringkasan statistik iklim di stesen meteorologi, Malaysia, 2023 dan 2024

		2023		2024	
		TERTINGGI	TERENDAH	TERTINGGI	TERENDAH
	Purata suhu minimum dan maksimum (°C)	32.2	16.2	32.0	17.0
	Stesen meteorologi	Subang, Selangor	Cameron Highlands, Pahang	Chuping, Perlis	Cameron Highlands, Pahang
	Hujan (mm)	5,213.6	1,429.2	5,624.0	1,704.3
	Stesen meteorologi	Mulu, Sarawak	Keningau, Sabah	Kapit, Sarawak	Kuala Pilah, Negeri Sembilan
	Bilangan hari hujan	271	160	273	144
	Stesen meteorologi	Mulu, Sarawak	Kuala Pilah, Negeri Sembilan	Kapit, Sarawak	Kota Bharu, Kelantan
	Bilangan hari kilat	317	1	312	1
	Stesen meteorologi	KLIA, Sepang	Sri Aman, Sarawak	KLIA, Sepang	Keningau, Sabah
	Purata kelembapan relatif (%)	90.2	75.1	87.8	72.8
	Stesen meteorologi	Cameron Highlands, Pahang	Bayan Lepas, Pulau Pinang	Cameron Highlands, Pahang	Bayan Lepas, Pulau Pinang

Sumber: Jabatan Meteorologi Malaysia

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KOMPONEN 2

SUMBER ALAM DAN KEGUNAANNYA

Sumber Mineral

- Mineral berlogam

Sumber Biologi

- Ternakan
- Akuakultur
- Tanaman komoditi



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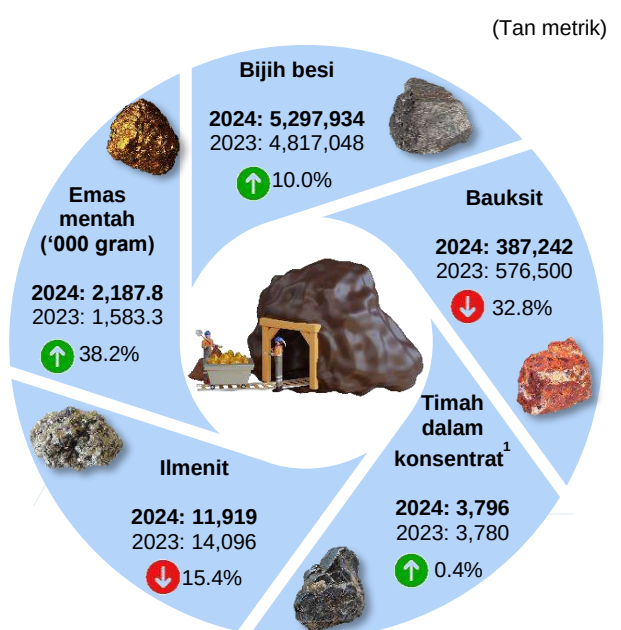
2.1: Sumber Mineral

Mineral berlogam adalah bahan yang terdapat secara semula jadi dengan kandungan tinggi logam tertentu. Mineral ini lazimnya terdapat di kerak bumi dan merupakan sumber berharga kerana boleh diekstrak dan diproses untuk mendapatkan logam. Mineral logam digunakan dalam pelbagai industri, seperti pembinaan, pengeluaran, elektronik dan pengangkutan. Beberapa mineral logam yang biasa dijumpai ialah besi, tembaga, aluminium, emas, perak, dan plumbum.

Pengeluaran timah dan konsentrat, bijih besi dan emas mentah pada 2024 menunjukkan peningkatan di antara 0.4 peratus dan 38.2 peratus berbanding pada 2023.

[Paparan 2.1]

Paparan 2.1: Pengeluaran mineral berlogam terpilih, Malaysia, 2023 dan 2024



Sumber: Jabatan Mineral dan Geosains

Nota: ¹ Timah dalam konsentrat adalah merujuk kepada kandungan timah dalam konsentrat bijih timah

↑ ↓ Kadar pertumbuhan (%)

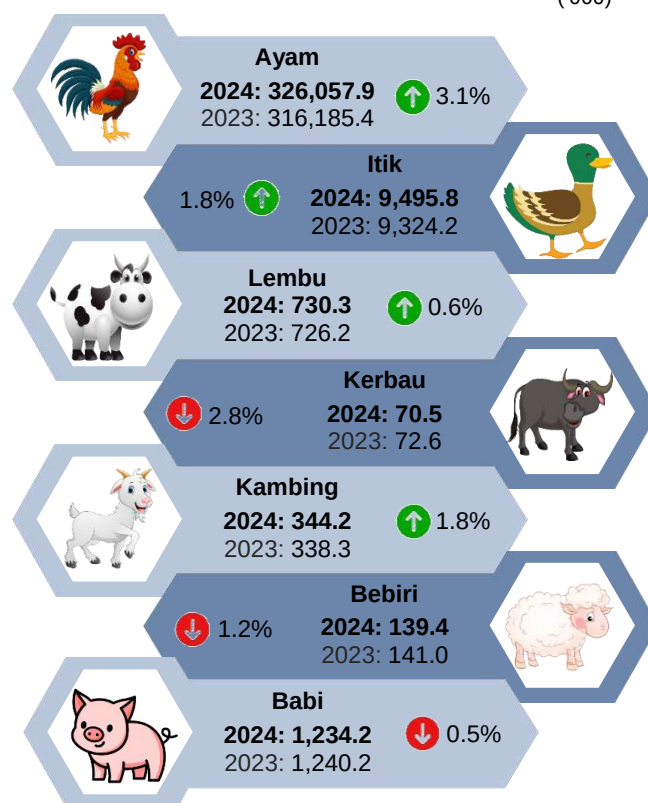
2.2: Sumber Biologi

Salah satu sumber biologi utama di Malaysia adalah ternakan. Ternakan merujuk kepada haiwan yang telah dijinakkan dan dibesarkan untuk pelbagai tujuan, terutamanya untuk pengeluaran makanan dan kegunaan pertanian lain. Ternakan merangkumi haiwan seperti lembu, kambing, babi, unggas dan lain-lain yang dibela di dalam kebun atau ladang ternakan.

Bilangan ternakan ayam mencatatkan peningkatan 3.1 peratus, itik (1.8%), kambing (1.8%) dan lembu (0.6%) pada 2024. Manakala, ternakan babi menurun 0.5 peratus diikuti oleh bebiri (-1.2%) dan kerbau (-2.8%). [Paparan 2.2]

Paparan 2.2: Bilangan ternakan, Malaysia, 2023 dan 2024

('000)



Sumber: Jabatan Perkhidmatan Veterinar

Akuakultur merupakan amalan menternak organisma akuatik seperti ikan, kerang, dan tumbuhan akuatik di dalam persekitaran terkawal seperti kolam, tangki, dan kepungan laut. Berdasarkan Akta Perikanan 1985, akuakultur adalah pembiakan benih ikan atau pemeliharaan biak ikan melalui perusahaan ternak keseluruhan atau sebahagian daripada peredaran hidupnya.

Pengeluaran industri akuakultur berjumlah 511.9 ribu tan metrik pada 2024, meningkat 1.0 peratus berbanding 2023. Pengeluaran akuakultur air tawar meningkat sebanyak 5.7 peratus kepada 119.5 ribu tan metrik dipacu oleh pengeluaran keli (45.0 ribu tan metrik) diikuti tilapia merah (21.0 ribu tan metrik) dan patin (20.9 ribu tan metrik). Manakala, pengeluaran akuakultur air payau/ masin menyumbang 76.7 peratus daripada keseluruhan pengeluaran akuakultur. Tiga penyumbang utama kepada pengeluaran akuakultur air payau/ masin ialah rumpai laut (220.3 ribu tan metrik), siakap (60.9 ribu tan metrik) dan udang putih (38.7 ribu tan metrik). **[Paparan 2.3]**

Paparan 2.3: Pengeluaran akuakultur, Malaysia, 2023 dan 2024

('000 tan metrik)



  Kadar pertumbuhan (%)

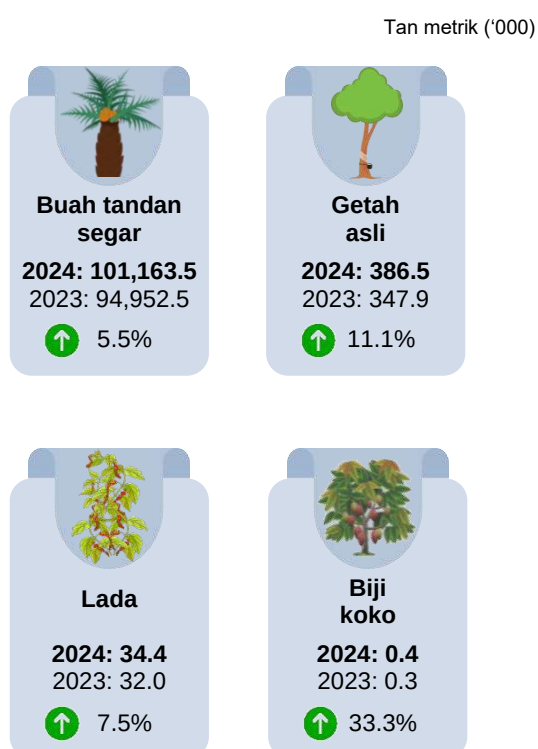
Sumber: Jabatan Perikanan Malaysia

Tanaman komoditi ditanam dalam kuantiti besar terutamanya untuk tujuan penjualan dan perdagangan sebagai bahan mentah dan bukan untuk penggunaan terus oleh manusia. Tanaman ini biasanya digunakan sebagai input dalam pelbagai industri, seperti pengeluaran makanan, makanan haiwan, biofuel, dan pembuatan industri. Tanaman komoditi adalah sebahagian asas dalam ekonomi pertanian global.

Pengeluaran semua tanaman komoditi terpilih menunjukkan peningkatan pada 2024 berbanding 2023. Buah tandan segar meningkat 5.5 peratus, getah asli (11.1%), lada (7.5%) dan biji koko (33.3%).

[Paparan 2.4]

Paparan 2.4: Pengeluaran tanaman komoditi terpilih, Malaysia, 2023 dan 2024



Sumber: Jabatan Pertanian Malaysia, Lembaga Minyak Sawit Malaysia, Lembaga Koko Malaysia, Lembaga Lada Malaysia, Lembaga Getah Malaysia dan Pihak Berkuasa Kemajuan Pekebun Kecil Perusahaan Getah

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KOMPONEN 3

SISA

Penghasilan dan Pengurusan Air Sisa

- Kemudahan pembentungan

Penghasilan dan Pengurusan Sisa

- Buangan terjadual
- Sisa klinikal

Pelepasan Bahan Kimia

- Pengeluaran dan import baja



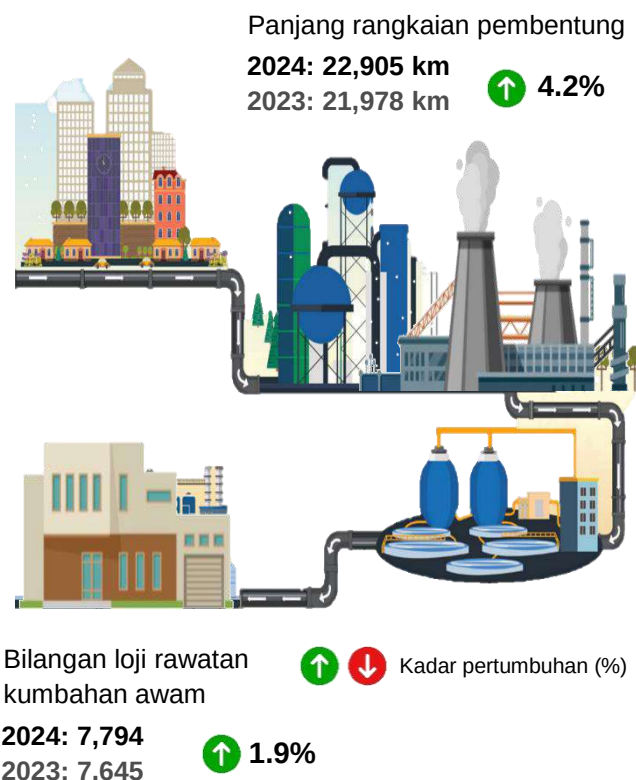
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3.1: Penghasilan dan Pengurusan Air Sisa

Pengurusan kumbahan yang sistematik dan efisien adalah amat penting dalam memastikan kualiti alam sekitar terjaga serta mengelakkan daripada penularan wabak penyakit berjangkit bawaan air. Menurut Indah Water Konsortium (IWK), proses rawatan kumbahan terdiri daripada dua jenis iaitu aerobik (menggunakan oksigen untuk memecahkan bahan organik) dan anaerobik (tidak menggunakan oksigen).

Panjang rangkaian pembetung yang direkodkan pada 2024 ialah 22,905 km (2023: 21,978 km) dengan bilangan loji rawatan kumbahan awam sebanyak 7,794 (2023: 7,645) selaras dengan pertumbuhan penduduk dan pembangunan kawasan perumahan dan perindustrian baharu. [Paparan 3.1]

Paparan 3.1: Kemudahan pembetungan, Malaysia, 2023 dan 2024



Sumber: Suruhanjaya Perkhidmatan Air Negara

3.2: Penghasilan dan Pengurusan Sisa

3.2.1 Buangan terjadual

Buangan terjadual merujuk kepada kategori sisa tersenarai dalam Jadual Pertama Peraturan-Peraturan Kualiti Alam Sekeliling (Buangan Terjadual) 2005. Ia juga ditakrifkan sebagai buangan toksik dan berbahaya yang dihasilkan oleh industri, pertanian, bengkel, kontraktor buangan terjadual, aktiviti domestik dan buangan klinikal dari hospital.

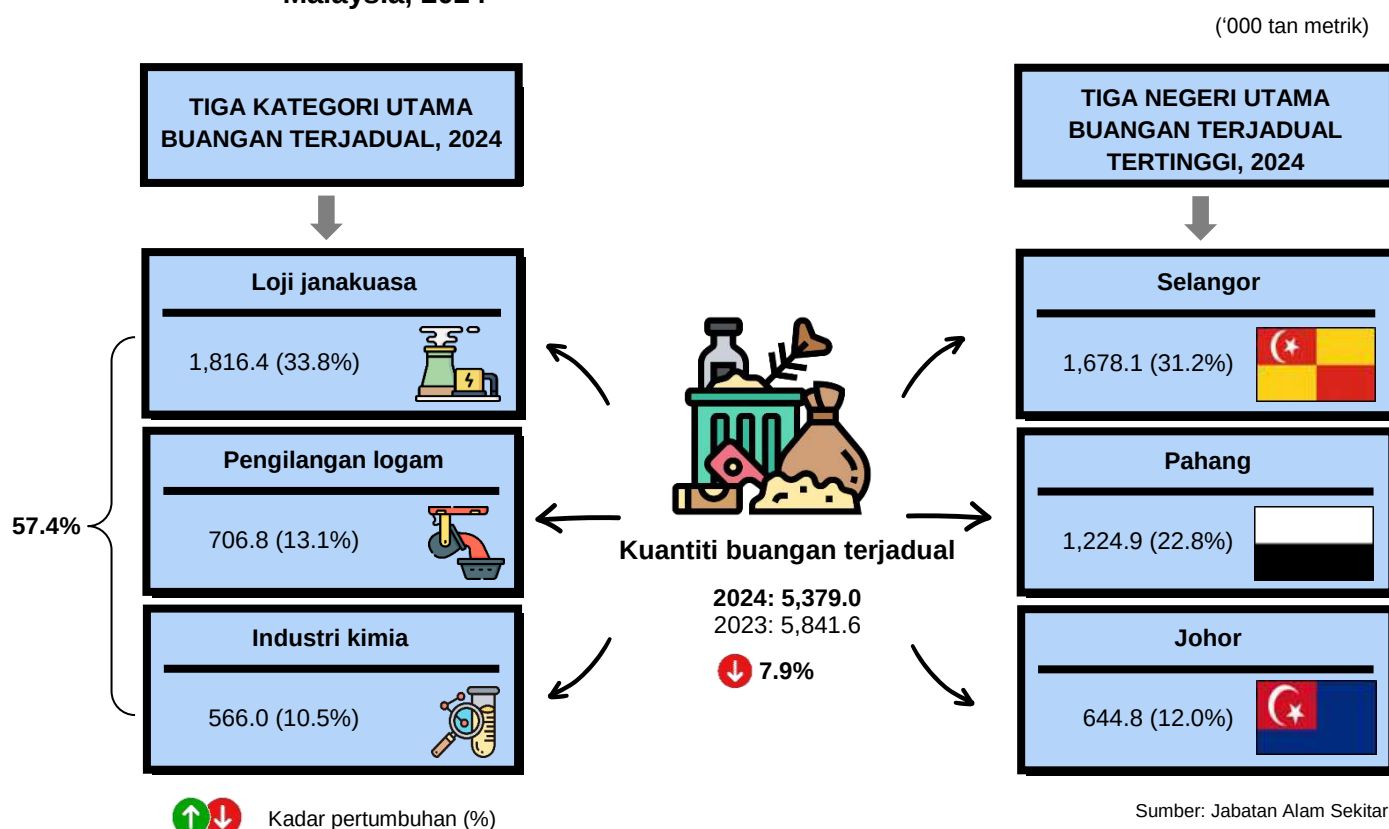
Sejumlah 5,379.0 ribu tan metrik buangan terjadual telah dihasilkan pada 2024, berkurang 7.9 peratus berbanding

5,481.6 ribu tan metrik yang dilaporkan pada 2023. Selangor menyumbang jumlah buangan terjadual tertinggi iaitu 31.2 peratus diikuti Pahang (22.8%) dan Johor (12.0%).

Tiga industri utama yang menyumbang 57.4 peratus daripada jumlah keseluruhan buangan terjadual ialah loji janakuasa (33.8%), pengilangan logam (13.1%) dan industri kimia (10.5%) pada 2024.

[Paparan 3.2]

Paparan 3.2: Kuantiti buangan terjadual mengikut tiga kategori utama dan negeri, Malaysia, 2024



3.2.2 Sisa klinikal

Buangan klinikal merujuk kepada buangan yang terdiri daripada keseluruhan atau sebahagian tisu manusia, darah atau bendalir badan, bahan kumuh, ubat-ubatan, produk farmaseutikal dan lain-lain. Ia diklasifikasikan sebagai buangan terjadual di bawah Jadual Pertama Peraturan-Peraturan Kualiti Alam Sekeliling (Buangan Terjadual) 2005.

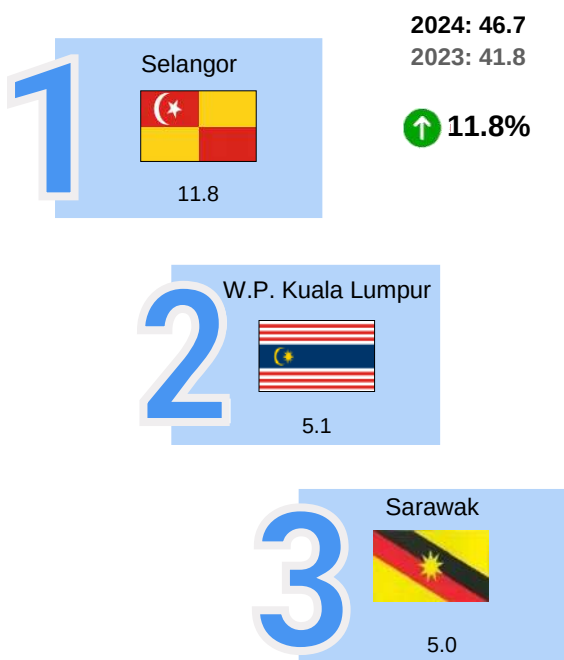
Kuantiti buangan klinikal pada 2024 direkodkan sebanyak 46.7 ribu tan metrik dengan kenaikan 11.8 peratus berbanding 41.8 ribu tan metrik pada 2023.

Tiga negeri mencatatkan jumlah buangan klinikal tertinggi iaitu Selangor (11.8 ribu tan metrik), W.P. Kuala Lumpur (5.1 ribu tan metrik) dan Sarawak (5.0 ribu tan metrik). **[Paparan 3.3]**

Paparan 3.3: Tiga negeri dengan buangan klinikal tertinggi, Malaysia, 2024

('000 tan metrik)

KUANTITI BUANGAN KLINIKAL



Sumber: Jabatan Alam Sekitar



Kadar pertumbuhan (%)

3.3: Pelepasan Bahan Kimia

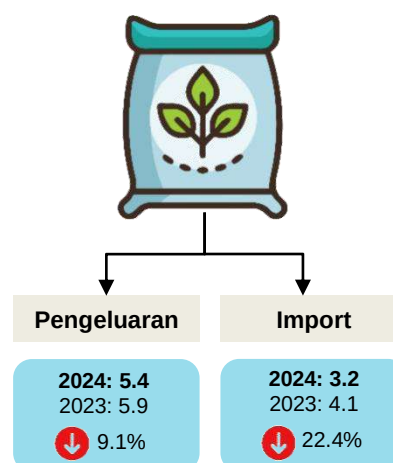
Baja ialah bahan atau campuran yang ditambahkan kepada tanah atau tumbuhan untuk membekalkan nutrien penting bagi menggalakkan tumbesaran tumbuh-tumbuhan dan meningkatkan hasil tanaman. Ia digunakan dalam pertanian dan perkebunan untuk mengatasi kekurangan nutrien dalam tanah bagi memastikan tumbuhan mempunyai bekalan elemen penting yang diperlukan untuk tumbesaran.

Pengeluaran baja pada 2024 ialah 5.4 juta tan metrik berbanding 5.9 juta tan metrik pada 2023, menurun 9.1 peratus. Manakala, jumlah import baja menurun 22.4 peratus daripada 4.1 juta tan metrik pada 2023 kepada 3.2 juta tan metrik pada 2024.

[Paparan 3.4]

Paparan 3.4: Pengeluaran dan import baja, Malaysia, 2023 dan 2024

(Juta tan metrik)



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KOMPONEN 4

KEJADIAN EKSTREM DAN BENCANA

Kejadian Ekstrem dan Bencana Semula Jadi

- Banjir
- Gempa bumi

Bencana Teknologi

- Insiden tumpahan minyak
- Kemalangan jalan raya
- Kebakaran



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4.1: Kejadian Ekstrem dan Bencana Semula Jadi

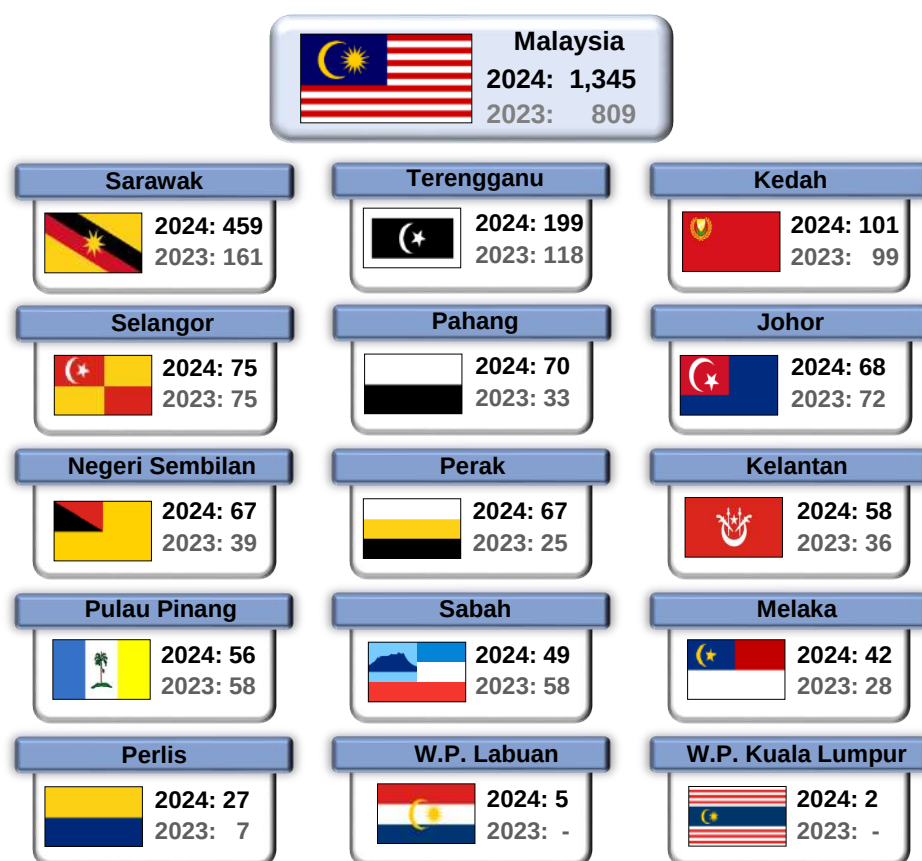
Banjir ialah limpahan air yang menenggelamkan tanah yang biasanya kering. Ini boleh berlaku disebabkan oleh pelbagai perkara, termasuk hujan lebat, pencairan salji, kegagalan empangan atau tambak, atau pencairan ais atau glasier yang cepat. Banjir boleh membawa kesan buruk kepada komuniti, infrastruktur dan alam sekitar.

Bilangan kejadian banjir yang dilaporkan pada 2024 ialah 1,345 di mana Sarawak mencatatkan kejadian banjir tertinggi iaitu 459, diikuti Terengganu (199) dan Kedah 101 kejadian. [Paparan 4.1]

Malaysia terletak berhampiran dengan dua sempadan pertembungan kepingan yang aktif keseismikannya iaitu sempadan pertembungan di antara Kepingan Indo-Australian dan Kepingan Eurasian di sebelah barat dan sempadan pertembungan di antara Kepingan Eurasian dan Kepingan Laut Filipina di sebelah timur di mana gegaran gempa bumi tersebut dapat dirasai di Malaysia¹.

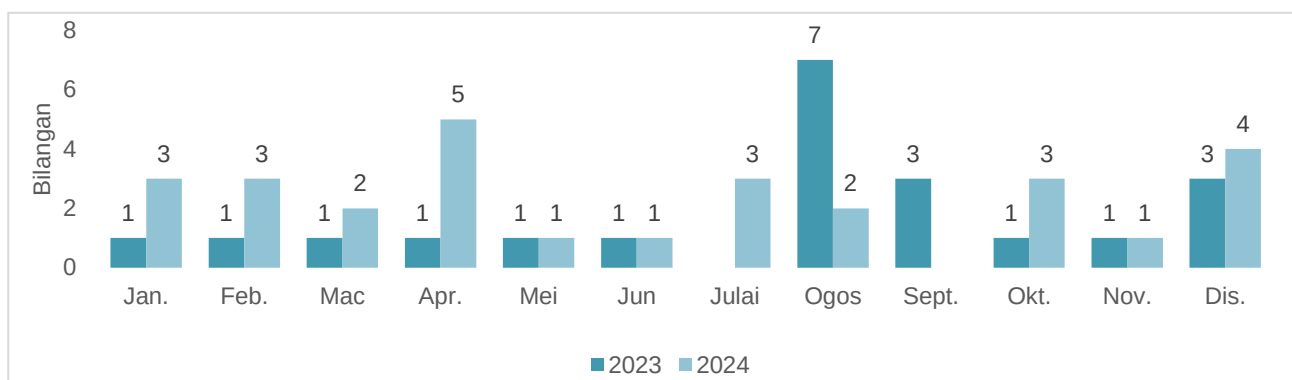
Sebanyak 28 kejadian gempa bumi dicatatkan pada 2024 dengan magnitud di antara 1.2 hingga 3.6, berbanding 21 kejadian pada 2023. [Carta 4.1]

Paparan 4.1: Bilangan kejadian banjir yang dilaporkan mengikut negeri, Malaysia, 2023 dan 2024



Sumber: Jabatan Pengairan dan saliran

¹ Portal laman web rasmi, www.met.gov.my

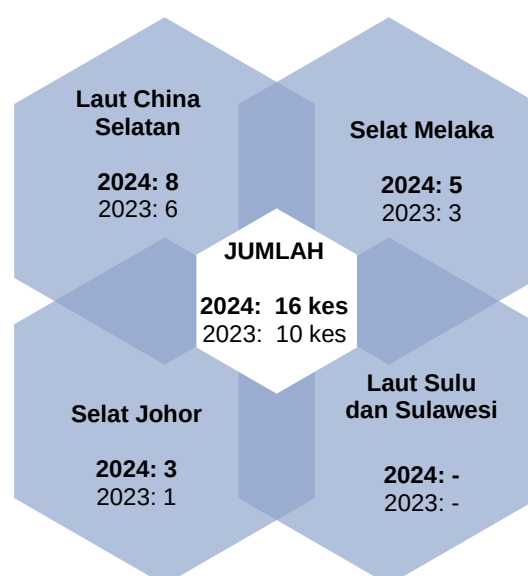
Carta 4.1: Bilangan kejadian gempa bumi, Malaysia, 2023 dan 2024

Sumber: Jabatan Meterologi Malaysia

4.2: Bencana Teknologi

Bencana teknologi adalah kejadian yang disebabkan oleh kerosakan struktur teknologi dan/ atau beberapa kesilapan manusia dalam mengawal atau mengendalikan teknologi. Bencana teknologi boleh dianggap sebagai bencana buatan manusia. Antara bencana teknologi termasuk tumpahan minyak, kebakaran industri, kemalangan nuklear dan bahan berbahaya yang boleh memberi kesan buruk kepada kesihatan dan sistem ekologi.

Terdapat 16 insiden tumpahan minyak di perairan Malaysia sepanjang 2024. Manakala Laut Sulu dan Sulawesi tidak mencatatkan sebarang insiden tumpahan minyak pada tahun 2023 dan 2024. **[Paparan 4.2]**

Paparan 4.2: Insiden tumpahan minyak di laut, Malaysia, 2023 dan 2024

Sumber: Jabatan Alam Sekitar

Kemalangan jalan raya berlaku apabila kenderaan berlanggar antara satu sama lain atau dengan pejalan kaki, haiwan atau objek pegun di atas jalan raya. Kemalangan ini boleh menyebabkan pelbagai kesan, termasuk kerosakan harta benda, kecederaan dan kematian. Pada tahun 2024, Malaysia mencatatkan peningkatan kadar kes kemalangan jalan raya iaitu 6.3 peratus, bertambah sebanyak 38,093 kes kepada 638,060 kes berbanding 2023. Selain itu, 6,469 kes kematian direkodkan pada 2024 akibat kemalangan jalan raya, berbanding 6,023 kematian pada tahun sebelumnya.

[Jadual 4.1]

Selangor mencatatkan jumlah tertinggi kemalangan jalan raya pada 2024 iaitu 187,156 kes, meningkat 7.9 peratus berbanding 173,487 kes pada 2023. Ini diikuti oleh Johor (97,466 kes) dan W.P. Kuala Lumpur (74,443 kes). Tiga negeri yang mencatatkan bilangan kes kemalangan jalan raya terendah ialah Perlis (2,517 kes), W.P. Putrajaya (2,320 kes) dan W.P. Labuan (604 kes). [Carta 4.2]



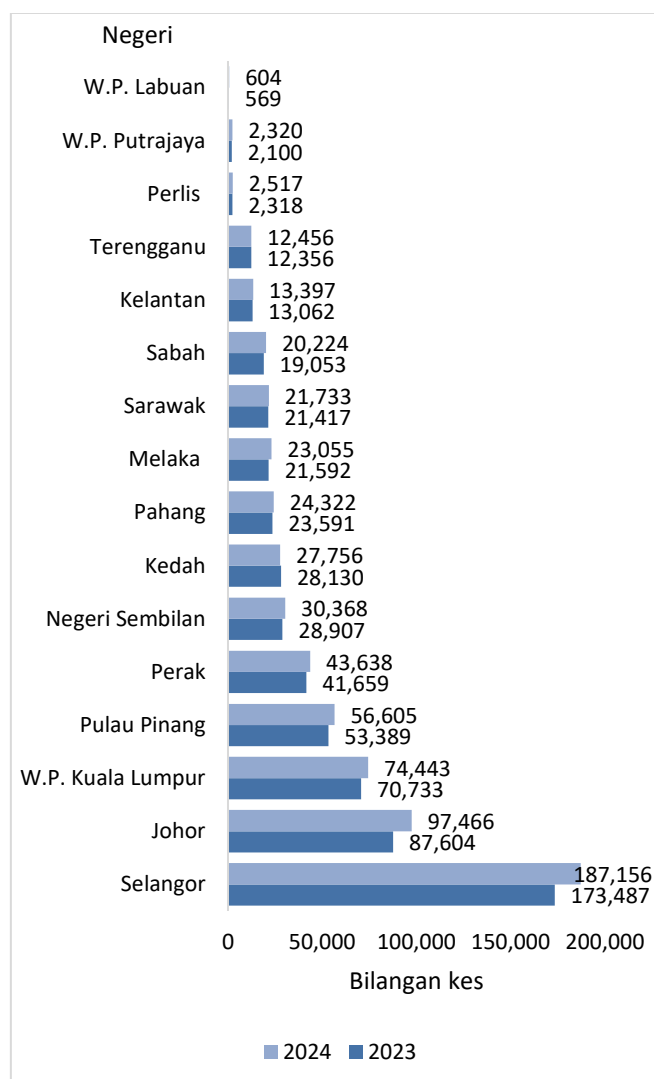
Jadual 4.1: Bilangan kemalangan jalan raya dan kecederaan yang dilaporkan, Malaysia, 2023 dan 2024

Tahun	Kemalangan jalan raya	Jumlah kecederaan		
		Kecederaan ¹	Kematian	Jumlah
2024	638,060	32,498	6,469	38,967
2023	599,967	31,597	6,023	37,620

Sumber:
Jabatan Siasatan dan Penguatkuasaan Trafik
Polis Diraja Malaysia

Nota:¹Kecederaan merujuk kepada kecederaan ringan dan parah

Carta 4.2: Bilangan kemalangan jalan raya yang dilaporkan mengikut negeri, Malaysia, 2023 dan 2024

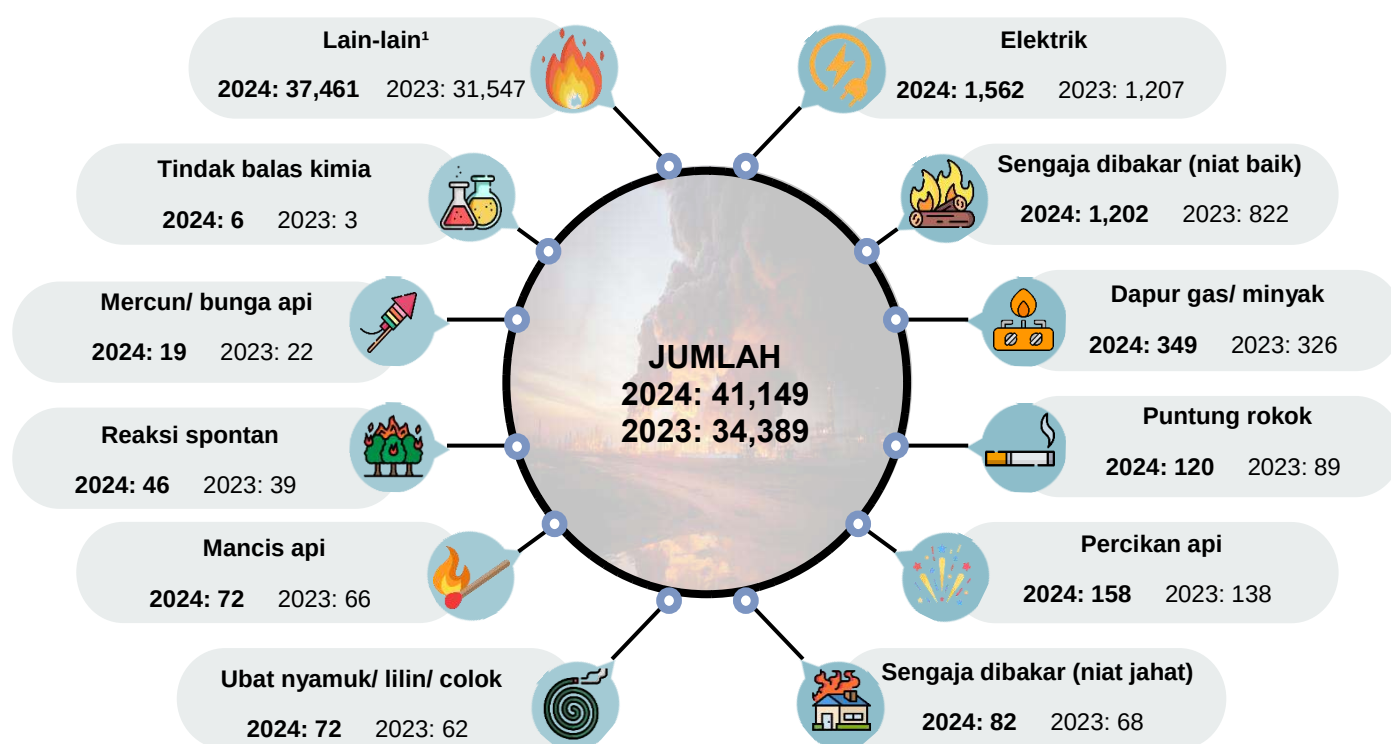


Sumber: Jabatan Siasatan dan Penguatkuasaan Trafik Polis Diraja Malaysia

Dalam istilah saintifik, kejadian kebakaran berlaku disebabkan oleh proses yang dipanggil pembakaran. Pembakaran ialah tindak balas kimia yang berlaku antara sumber bahan api, oksigen (biasanya dari udara) dan sumber haba. Tindak balas ini mengakibatkan pembebasan haba, cahaya, dan pembentukan sebatian kimia baru, biasanya dalam bentuk nyalaan.

Terdapat 41,149 kejadian kebakaran yang direkodkan pada 2024, meningkat 19.7 peratus berbanding 2023. Elektrik, sengaja dibakar (niat baik) dan dapur gas/minyak adalah antara punca utama yang menyumbang kepada kejadian kebakaran di Malaysia. Manakala, tindak balas kimia, mercun/ bunga api dan reaksi spontan mencatatkan bilangan kes terendah pada tahun 2024. [Paparan 4.3]

Paparan 4.3: Kejadian kebakaran mengikut punca, Malaysia, 2023 dan 2024



Nota: ¹Termasuk punca tidak diketahui

Sumber: Kementerian Perumahan Kerajaan Tempatan

KOMPONEN 5

PENEMPATAN PENDUDUK DAN KESIHATAN PERSEKITARAN

Penempatan Penduduk

- Penduduk dan kepadatan
- Isi rumah dengan kemudahan bekalan elektrik
- Pendaftaran baru kenderaan bermotor

Kesihatan Persekitaraan

- Penyakit bawaan makanan dan air
- Keracunan makanan



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5.1: Penempatan Penduduk

Jumlah penduduk Malaysia pada 2025 dianggarkan seramai 34.2 juta orang. Tiga negeri yang mencatatkan komposisi penduduk paling ramai pada 2025 adalah Selangor (7.4 juta: 21.6%), Johor (4.2 juta: 12.3%) dan Sabah (3.8 juta: 11.0%). Dari segi jantina, penduduk lelaki adalah seramai 18.0 juta (52.5%) manakala penduduk perempuan seramai 16.3 juta (47.5%).

Kepadatan penduduk Malaysia pada 2025 adalah seramai 104 orang per kilometer persegi. W.P. Kuala Lumpur mempunyai kepadatan penduduk tertinggi iaitu 8,546 orang per kilometer persegi, diikuti W.P. Putrajaya (2,450 orang per km²) dan Pulau Pinang (1,749 orang per km²) manakala Sarawak adalah yang terendah dengan 20 orang per kilometer persegi.

[Paparan 5.1]

Paparan 5.1: Penduduk¹ dan kepadatan, Malaysia, 2025



PENDUDUK
34.2 juta

Selangor
7.4 juta



Johor
4.2 juta



Sabah
3.8 juta



KEPADATAN
104 orang per km²

W.P. Kuala Lumpur
8,546 orang per km²



W.P. Putrajaya
2,450 orang per km²



Pulau Pinang
1,749 orang per km²



Nota: ¹Anggaran Penduduk Pertengahan Tahun 2025

Isi rumah di kawasan bandar mempunyai akses hampir sepenuhnya (99.9%) kepada bekalan elektrik manakala di kawasan luar bandar (99.0%) pada 2022. Ini merupakan indikator SDG 7.1.1: Perkadaran penduduk dengan akses kepada bekalan elektrik.

[Paparan 5.2]

Dari segi pendaftaran baru kenderaan bermotor, terdapat 1,570.2 ribu kenderaan bermotor baru berdaftar pada 2024, meningkat sebanyak 2.4 peratus daripada 1,533.1 ribu pada 2023. Pendaftaran baru bagi semua jenis kenderaan menunjukkan peningkatan pada 2024 berbanding tahun sebelumnya kecuali lain-lain kenderaan.

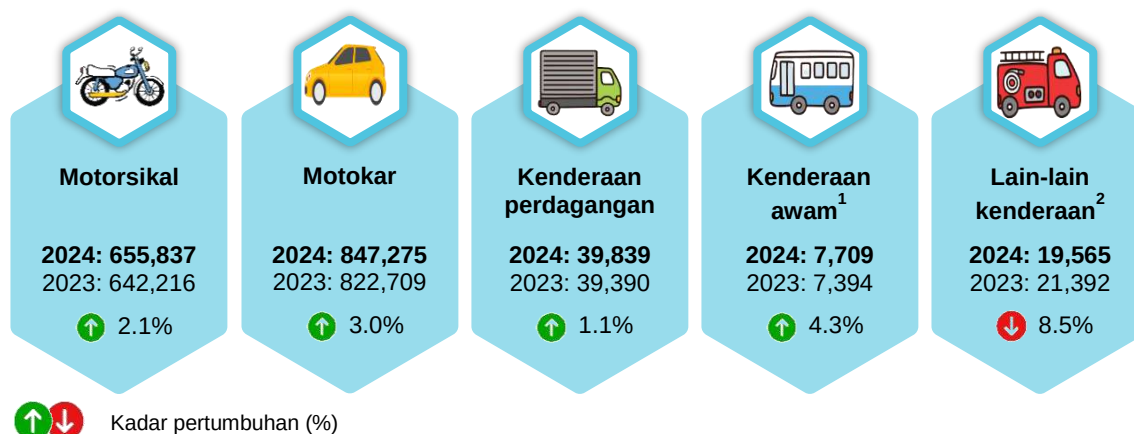
[Paparan 5.3]

Paparan 5.2: Peratus isi rumah dengan kemudahan bekalan elektrik, Malaysia, 2022



Sumber: Laporan Survei Kemudahan Asas 2022

Paparan 5.3: Bilangan pendaftaran baru kenderaan bermotor di Malaysia, 2023 dan 2024



Sumber: Jabatan Pengangkutan Jalan

Nota:

¹ Meliputi bas, teksi dan kereta sewa

² Merangkumi kenderaan seperti karavan, kenderaan bomba kerajaan & swasta, kenderaan sekolah memandu, kenderaan mayat, kenderaan orang cacat, kenderaan kerajaan, kenderaan pihak berkuasa tempatan, ambulan dan kenderaan kedutaan

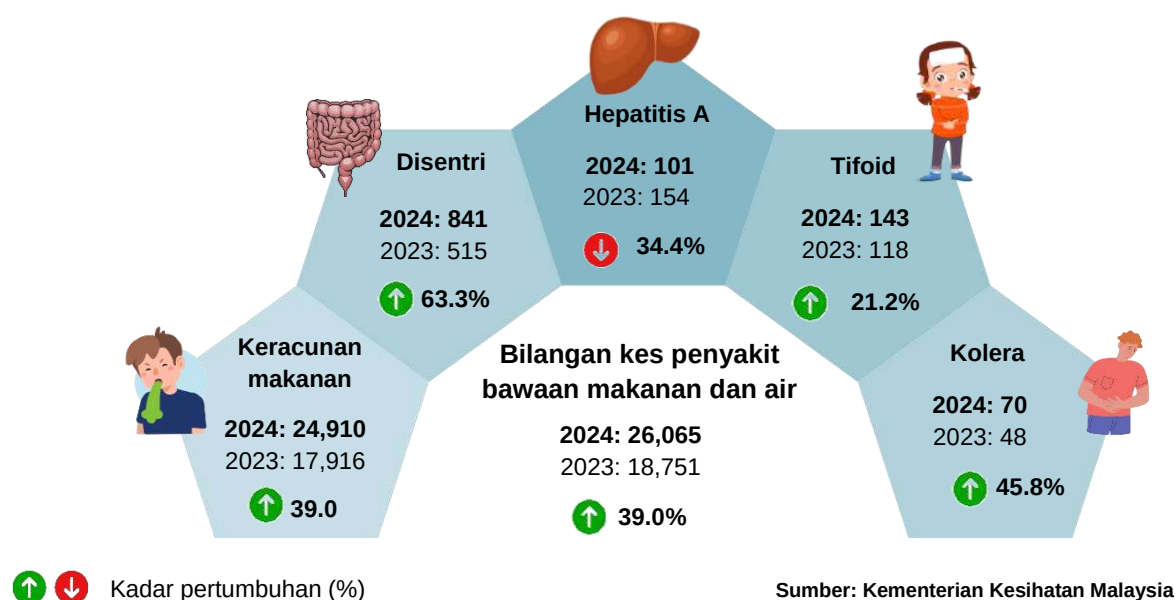
5.2: Kesihatan Persekitaran

Kolera, Tifoid, Disentri, Hepatitis A dan keracunan makanan merupakan penyakit bawaan makanan dan air. Bilangan kes penyakit bawaan makanan dan air menunjukkan peningkatan sebanyak 39.0 peratus kepada 26,065 kes pada 2024 daripada 18,751 kes pada 2023. Keracunan makanan mencatatkan bilangan kes tertinggi

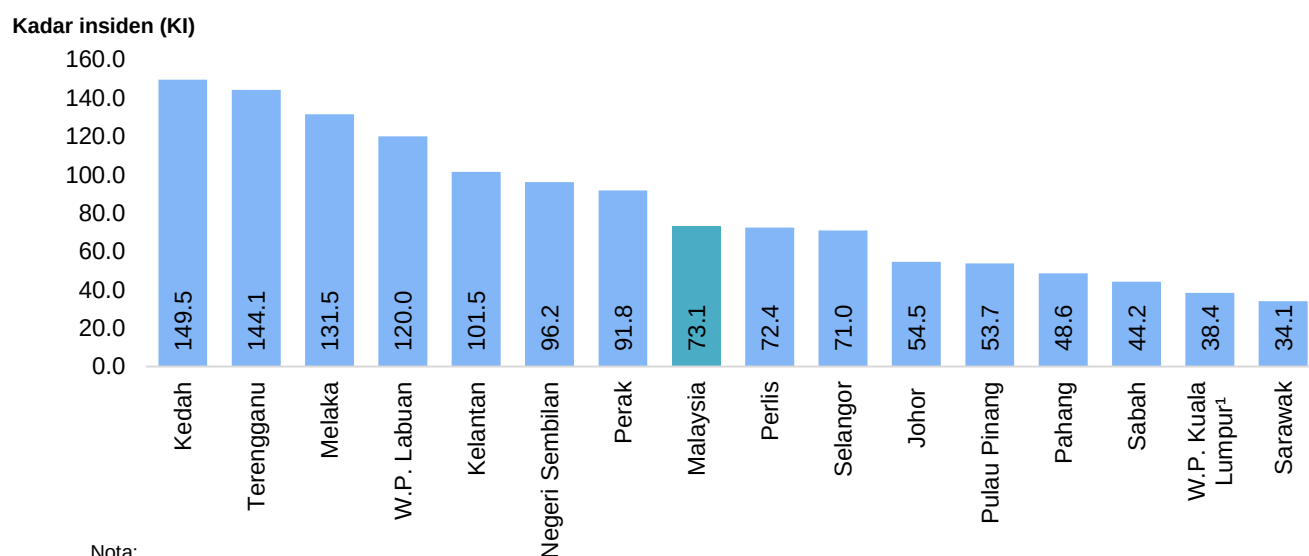
yang menyumbang 95.6 peratus (24,910 kes). [Paparan 5.4]

Kedah mencatatkan kadar insiden keracunan makanan tertinggi bagi setiap 100,000 penduduk iaitu 149.5 pada 2024, diikuti Terengganu (144.1) dan Melaka (131.5). [Carta 5.1]

Paparan 5.4: Bilangan kes penyakit bawaan makanan dan air, Malaysia, 2023 dan 2024



Carta 5.1: Kadar insiden keracunan makanan mengikut negeri, Malaysia, 2024



Sumber: Kementerian Kesihatan Malaysia

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KOMPONEN 6

PENGLIBATAN, PENGURUSAN DAN PERLINDUNGAN ALAM SEKITAR

Perbelanjaan Perlindungan Alam Sekitar dan Pengurusan Sumber

- Saman yang dikeluarkan bagi pelepasan asap hitam
- Perbelanjaan perlindungan alam sekitar



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6.1: Pelepasan asap hitam di Malaysia

Pelepasan pencemaran daripada kenderaan merupakan salah satu penyumbang utama kepada pencemaran udara di kawasan bandar. Pembakaran bahan api fosil oleh kenderaan seperti kereta, trak, dan pengangkutan lain melepaskan bahan pencemar seperti karbon monoksida (CO), nitrogen oksida (NO_x) dan sebatian organik yang mudah meruap (VOCs) ke atmosfera. Usaha untuk mengurangkan kesan pelepasan pencemaran daripada kenderaan termasuk pembangunan dan penggunaan teknologi kenderaan yang lebih bersih seperti kenderaan elektrik dan hibrid, penggunaan bahan api yang lebih bersih, kempen menaiki pengangkutan awam dan berkongsi kenderaan, serta pelaksanaan peraturan dan piawaian kawalan pelepasan.

Sebanyak 582 saman bagi pelepasan asap hitam oleh kenderaan telah dikeluarkan oleh Jabatan Alam Sekitar pada 2024 berbanding 453 saman yang dicatatkan pada 2023. Kenderaan lori mencatatkan bilangan saman tertinggi iaitu 437 (75.1%) berbanding kenderaan bermotor yang lain. **[Paparan 6.2]**

Paparan 6.1: Bilangan saman yang dikeluarkan bagi pelepasan asap hitam mengikut jenis kenderaan, Malaysia, 2023 dan 2024



Sumber: Jabatan Alam Sekitar

6.2: Perbelanjaan Perlindungan Alam Sekitar dan Pengurusan Sumber

Perbelanjaan perlindungan alam sekitar merujuk kepada sumber kewangan yang diperuntukkan oleh kerajaan, organisasi atau individu untuk mencegah, mengurangkan atau menangani masalah alam sekitar serta untuk melindungi ekosistem semula jadi. Perbelanjaan ini bertujuan untuk mengurangkan kesan negatif aktiviti manusia terhadap alam sekitar dan menggalakkan kelestarian.

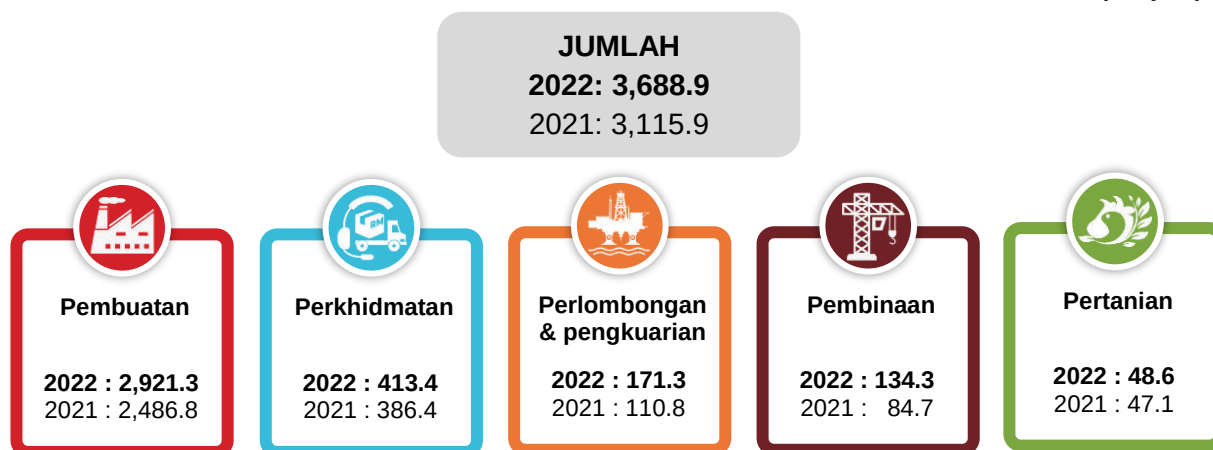
Prestasi perbelanjaan perlindungan alam sekitar bagi tahun 2022 mencatatkan peningkatan 18.4 peratus kepada RM3.7 bilion berbanding RM3.1 bilion pada 2021.

Sektor pembuatan membelanjakan RM2,921.3 juta atau 79.2 peratus kepada keseluruhan perbelanjaan perlindungan alam sekitar pada 2022, diikuti sektor perkhidmatan RM413.4 juta (11.2%) dan sektor perlombongan dan pengkuarian RM171.3 juta (4.6%). Semua sektor menunjukkan peningkatan dalam perbelanjaan perlindungan alam sekitar pada 2022. **[Paparan 6.1]**



Paparan 6.2: Perbelanjaan perlindungan alam sekitar mengikut sektor, Malaysia, 2021 dan 2022

(RM juta)



Sumber: Banci Ekonomi 2023 - Perbelanjaan Perlindungan Alam Sekitar

COMPONENT 1

ENVIRONMENTAL CONDITIONS AND QUALITY

Environmental Quality

- *Particulate matter (PM_{10} & $PM_{2.5}$)*
- *Ground level ozone (O_3)*
- *Carbon monoxide (CO)*
- *Sulphur dioxide (SO_2)*
- *Nitrogen dioxide (NO_2)*

Air Quality Status

- *Air Pollution Index (API)*

River Water Quality

Physical Conditions

- *Mean temperature, rainfall, mean relative humidity & lightning*



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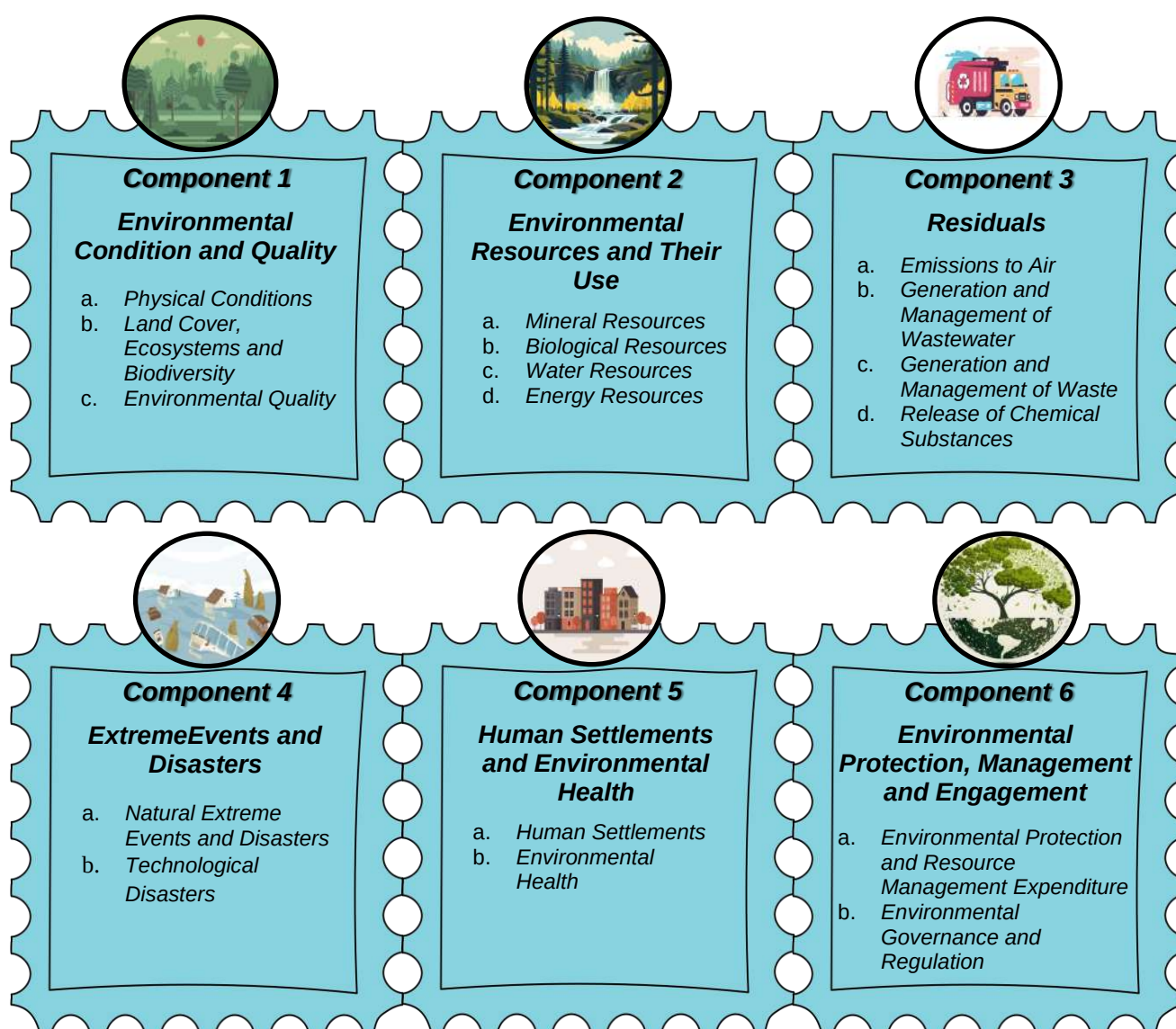
INTRODUCTION

The Compendium of Environment Statistics (CES), Malaysia 2025 presents statistics on the environment by component, namely Environmental Conditions and Quality; Environmental Resources and Their Use; Residuals; Extreme Events and Disasters; Human Settlements and Environmental Health; and Environmental Protection, Management and Engagement.

The framework used in this publication is based on the Framework for the Development of Environment Statistics (FDES), United Nations, 2013. **[Exhibit 1.1]**

The publication contains 180 tables that are divided into six components.

Exhibit 1.1: Component of FDES 2013



1.1: Environmental Quality

Air pollutant is a substance in the air that can be harmful to human beings and the environment. Pollutants can be in the form of solid particles, liquid droplets or gases. There are six main pollutants namely Ground Level Ozone (O_3), Carbon Monoxide (CO), Sulphur Dioxide (SO_2), Nitrogen Dioxide (NO_2) and Particulate Matter (PM_{10} & $PM_{2.5}$). Air pollution occurs when these pollutants are present in the atmosphere. The sources and effects of air pollutants are shown in **Appendix 2**.

Particulate Matter (PM_{10} & $PM_{2.5}$)

Particulate Matter (PM_{10} & $PM_{2.5}$) is the term used to describe respirable particles of less than 10 and 2.5 micron in diameter. Particles may be solid or liquid and it includes aerosols, dust, smoke and pollen. Emission of particulate matter from motor vehicle exhausts, heat and power generation, industrial processes and open burning activities will lead to air pollution and endanger human health and plants.

The monthly average trend concentration of $PM_{2.5}$ in the air in 2024 showed six out of 12 months increased, namely in February (8.1%), March (5.0%), July (0.4%), August (8.5%), November (15.0%) and December (17.9%) as compared to 2023. On the other hand, there was a sharp decline in April (-25.7%), September (-23.6%) and October (-31.0%). **[Chart 1.1]**

Meanwhile, the monthly average trend concentration of PM_{10} in the air in 2024 showed a decline in eight out of 12 months, mainly in January (-2.5%), April (-14.8%), May (-2.7%), June (-8.6%), July (-9.6%), August (-6.7%), September (-14.1%) and October (-22.5%) as compared to 2023. On the contrary, a double-digit increase recorded in November (12.0%). **[Chart 1.2]**

Ground level ozone (O_3)

O_3 is a pollutant which is formed by the chemical reaction in the air between volatile organic compounds (VOC_s) and nitrogen oxide (NO_x). These VOC_s and NO_x are produced by motor vehicles and industries.

The monthly average trend of O_3 concentration in the air in 2024 showed a decline in January (-16.7%), February (-17.6%), March (-15.8%), April (-5.3%) and October (-5.9%) as compared to 2024. Conversely, July, August and November posted a double digit increment of 20.0 per cent, 13.3 per cent and 14.3 per cent, respectively. **[Chart 1.3]**

Carbon Monoxide (CO)

CO is a colourless, odourless and toxic gas produced from fossil fuel combustion sources such as vehicle exhaust, industrial processes and open burning activities.

The monthly average trend concentration of CO in the air in 2024 overall recorded a declined except in February (2.1%), March (12.6%) and December (0.2%) as compared to the previous year. **[Chart 1.4]**

Sulphur Dioxide (SO₂)

SO₂ is colourless, water-soluble reactive gas with an irritating odour. Excessive exposure to a high concentration of SO₂ in the atmosphere causes respiratory illnesses and complication to existing cardiovascular problems.

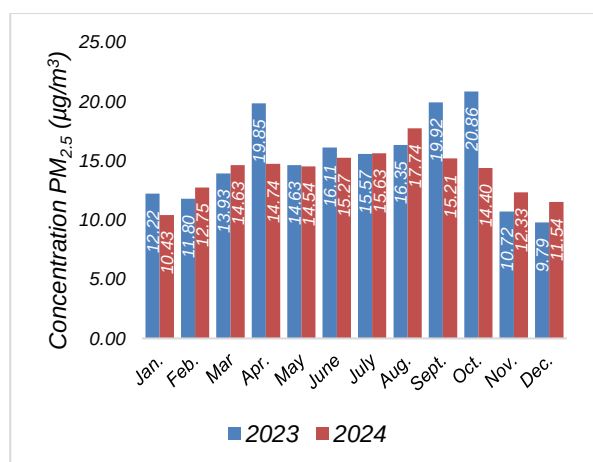
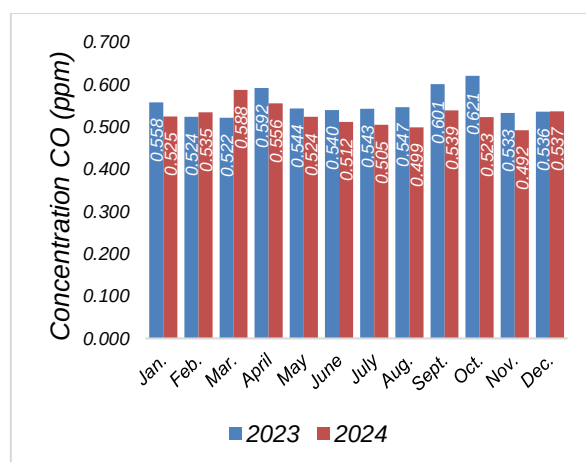
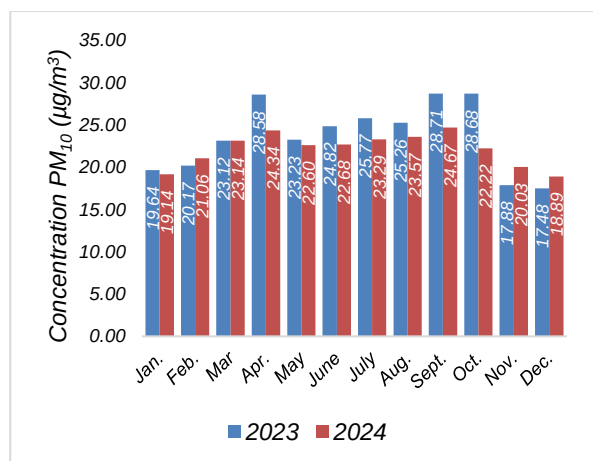
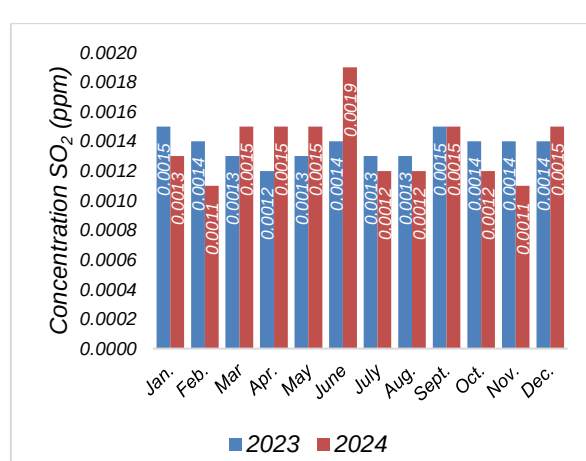
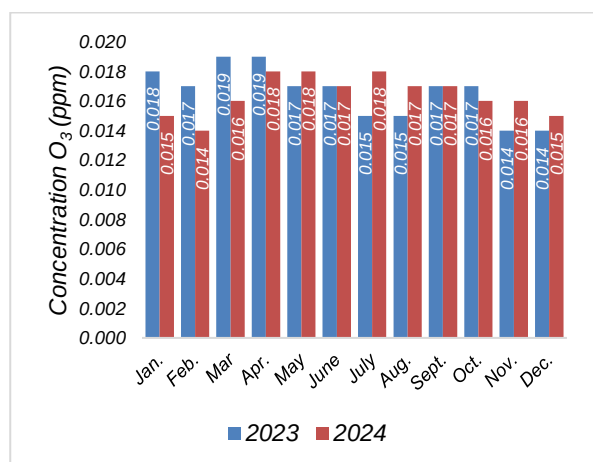
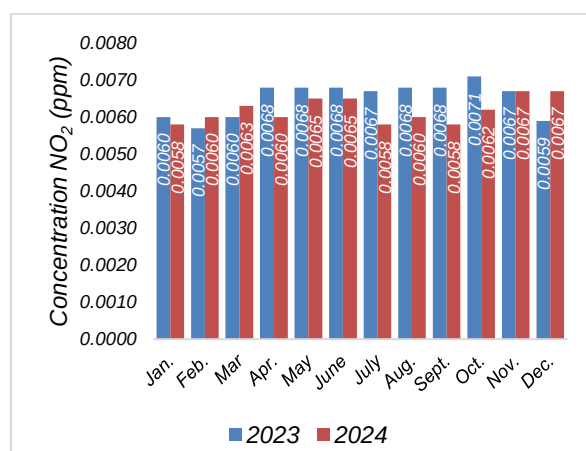
The monthly average trend concentration of SO₂ in the air in 2024 recorded an increase in six out of 12 months, with March (15.4%), April (25.0%), May (15.4%) and June (35.7%) all recorded a double digit increment. On the other hand, month of January (-13.3%), February (-21.4%), October (-14.3%) and November (-21.4%) posted a double digit declined. **[Chart 1.5]**

Nitrogen Dioxide (NO₂)

NO₂ is formed in the ambient air through the oxidation of Nitrogen Monoxide (NO). This reddish brown toxic gas has a sharp and pungent odour.

The monthly average trend of NO₂ concentration in 2024 shows an increase in just three months namely (February (5.3%), March (5.0%) and December (13.6)). On the other hand, November remain unchanged as compared to the previous year. **[Chart 1.6]**



Chart 1.1: Monthly average concentration of PM_{2.5} in the air, Malaysia, 2023 and 2024**Chart 1.4: Monthly average concentration of CO in the air, Malaysia, 2023 and 2024****Chart 1.2: Monthly average concentration of PM₁₀ in the air, Malaysia, 2023 and 2024****Chart 1.5: Monthly average concentration of SO₂ in the air, Malaysia, 2023 and 2024****Chart 1.3: Monthly average concentration of O₃ in the air, Malaysia, 2023 and 2024****Chart 1.6: Monthly average concentration of NO₂ in the air, Malaysia, 2023 and 2024**

1.2: Air Quality Status

Air Pollution Index (API)

The Department of Environment (DOE) monitors the country's ambient air quality through 65 monitoring stations that are located throughout the country to monitor and to detect any significant change in the air quality that can contribute to the negative impact on human health and the environment.

The status of air quality in Malaysia is reported as the Air Pollutant Index (API). The air pollutants used in computing the API are Ozone (O₃), Carbon Monoxide (CO), Nitrogen Dioxide (NO₂), Sulphur Dioxide (SO₂), Particulate Matter of less than 10 microns in size (PM₁₀) and Particulate Matter of less than 2.5 microns in size (PM_{2.5}).

Exhibit 1.2: Status of Air Pollution Index (API)

API	API Status
0-50	Good
51-100	Moderate
101-200	Unhealthy
201-300	Very Unhealthy
>300	Hazardous

Source: Department of Environment

Based on the guidelines issued by DOE, there are five levels of API in describing air quality in Malaysia, namely good, moderate, unhealthy, very unhealthy and hazardous. **Appendix 3** describes the comparison of API values with the level of pollution and health measures.

Malaysia in overall recorded a “good” and “moderate” air quality status for 2024. Kapit station recorded the highest number of days (314 days) with “good” air quality in 2024 as compared to 322 days the previous year (Kimanis station).

API reading shows an increase in the number of days with “good” air quality especially in major cities across the country due to lower air pollutant emissions such as motor vehicles smoke, industrial chimney emissions and open burning activities. **[Chart 1.7 – Chart 1.20]**

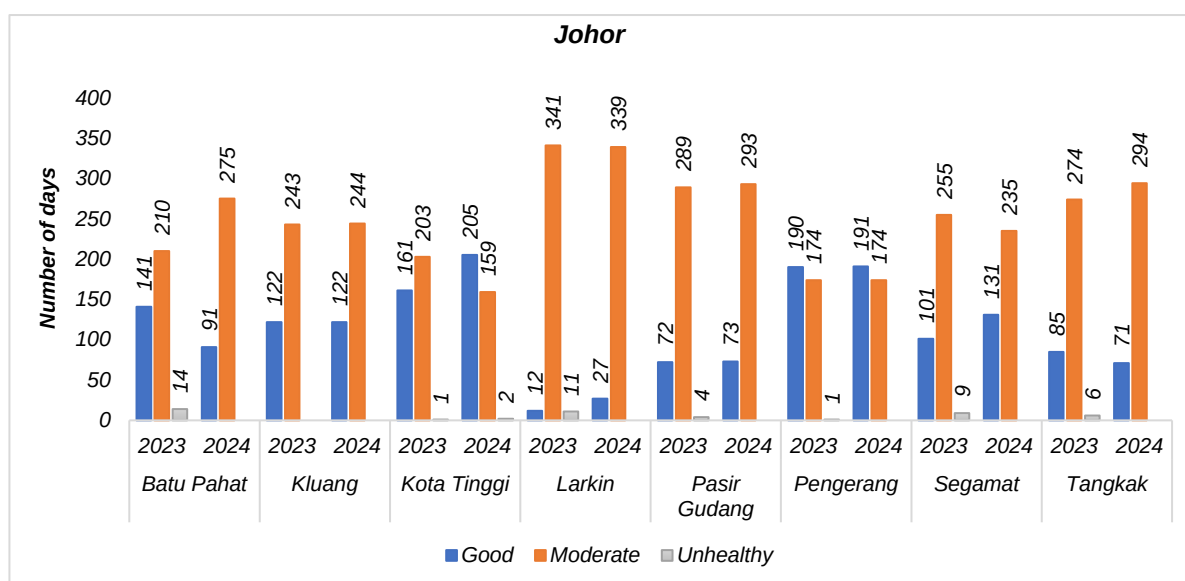
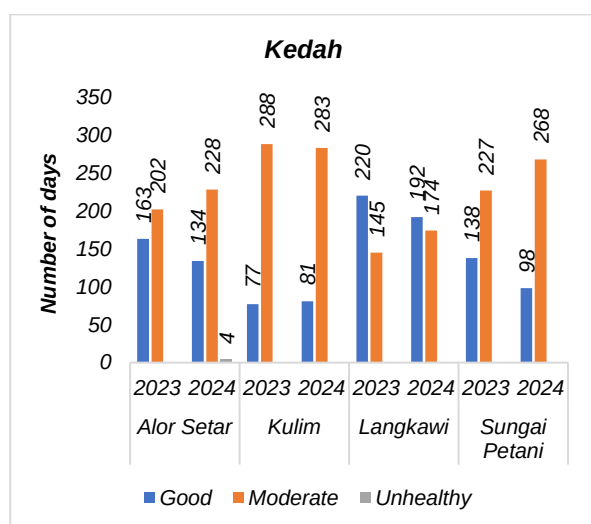
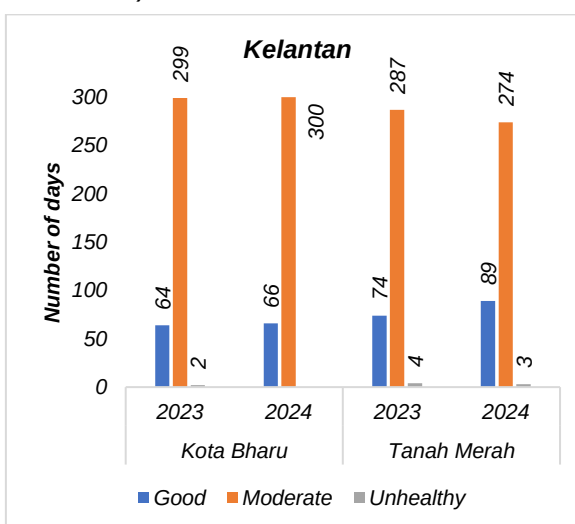
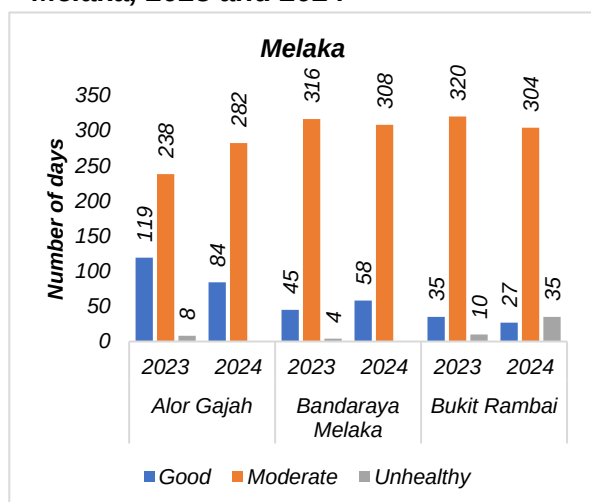
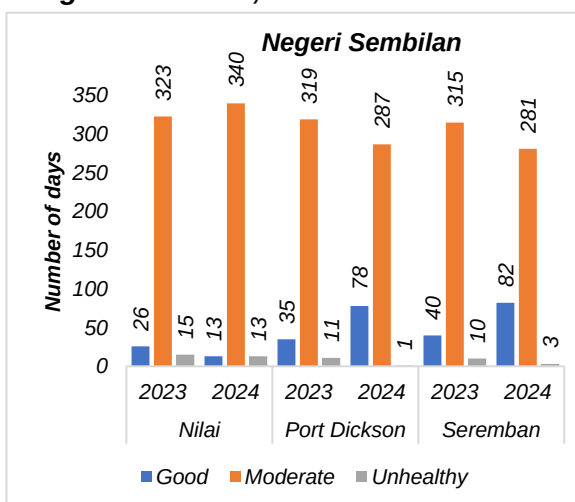
Chart 1.7: Status of air quality¹, Johor, 2023 and 2024**Chart 1.8: Status of air quality¹, Kedah, 2023 and 2024****Chart 1.9: Status of air quality¹, Kelantan, 2023 and 2024****Chart 1.10: Status of air quality¹, Melaka, 2023 and 2024****Chart 1.11: Status of air quality¹, Negeri Sembilan, 2023 and 2024**¹Air quality status readings are based on daily maximum readings

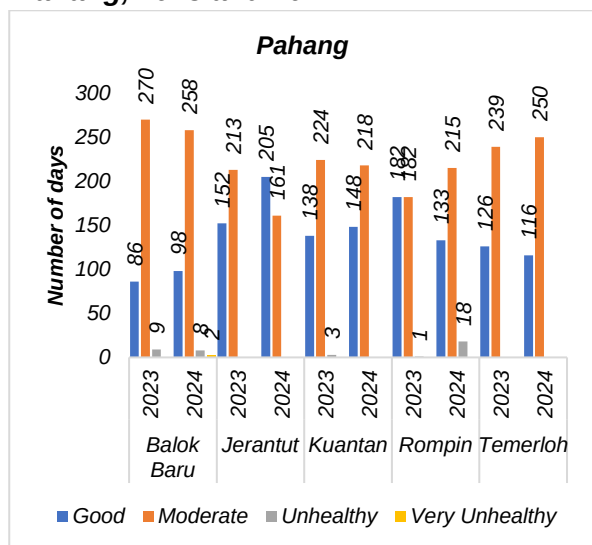
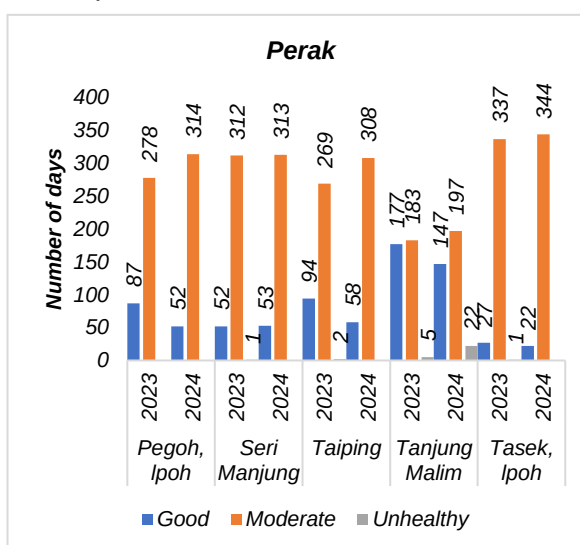
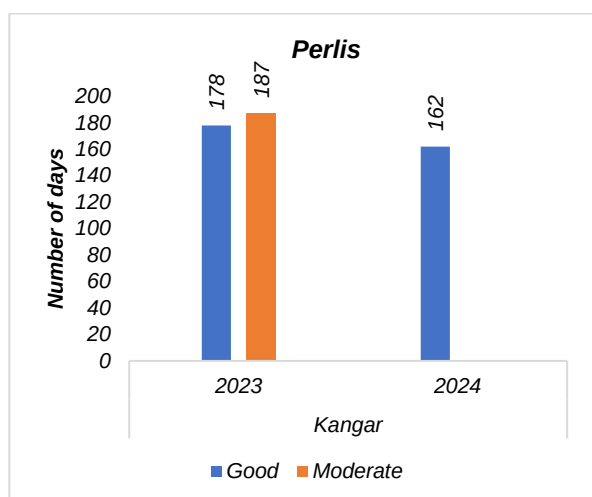
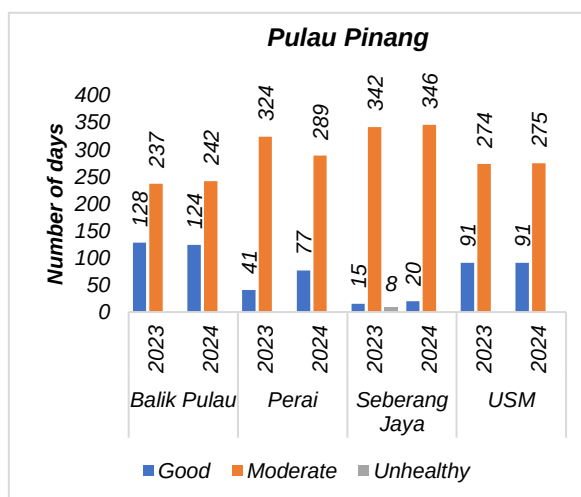
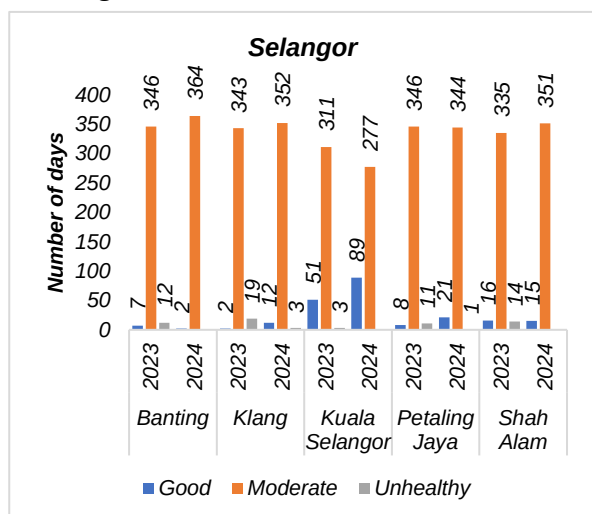
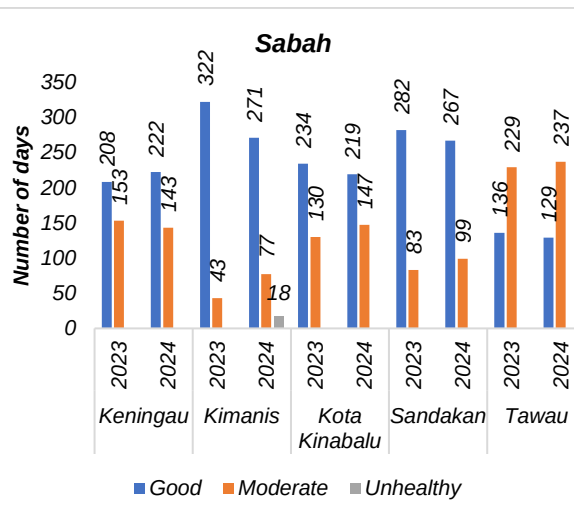
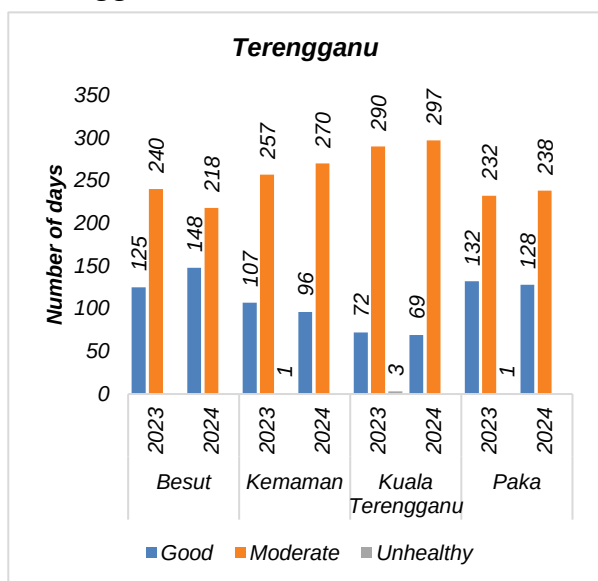
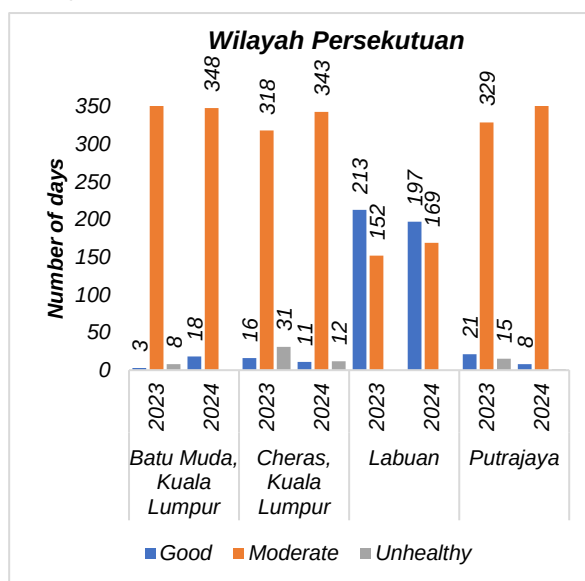
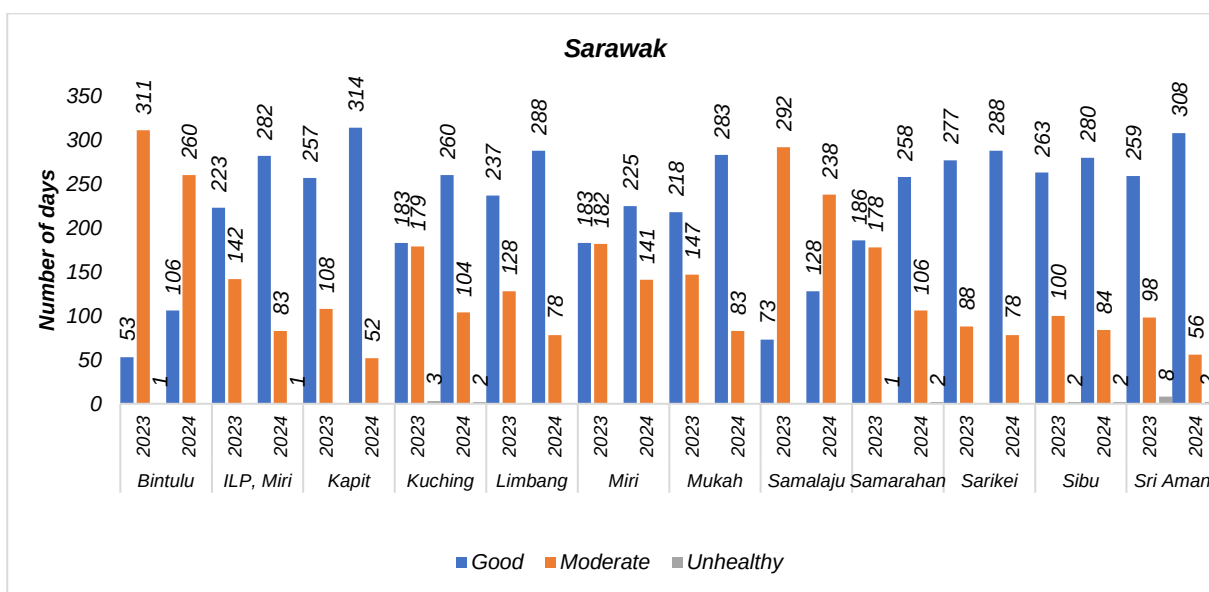
Chart 1.12: Status of air quality¹, Pahang, 2023 and 2024**Chart 1.13: Status of air quality¹, Perak, 2023 and 2024****Chart 1.14: Status of air quality¹, Perlis, 2023 and 2024****Chart 1.15: Status of air quality¹, Pulau Pinang, 2023 and 2024****Chart 1.16: Status of air quality¹, Selangor, 2023 and 2024****Chart 1.17: Status of air quality¹, Sabah, 2023 and 2024**¹Air quality status readings are based on daily maximum readings

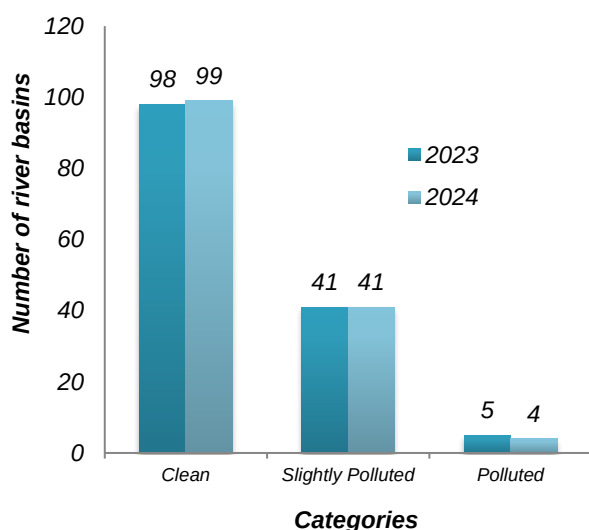
Chart 1.18: Status of air quality¹, Terengganu, 2023 and 2024**Chart 1.19: Status of air quality¹, Wilayah Persekutuan, 2023 and 2024****Chart 1.20: Status of air quality¹, Sarawak, 2023 and 2024**¹Air quality status readings are based on daily maximum readings

Source: Department of Environment

1.3 River Water Quality

Results from the Department of Environment (DOE) monitoring of 144 river basins, showed that 99 (68.7%) river basins were in the “clean” category followed by 41 river basins (28.5%) “slightly polluted” category and 4 river basins (2.8%) “polluted” categories as compared to 2021. [Chart 1.21]

Chart 1.21: Status of river water quality by category, Malaysia, 2023 and 2024



Source: Department of Environment

The status of river water quality in Malaysia is measured based on three main pollutants namely Ammoniacal Nitrogen ($\text{NH}_3\text{-N}$), Biochemical Oxygen Demand (BOD_5) and Suspended Solids (SS). Out of 144 river basins, the number of river basins categorised as “clean” based on $\text{NH}_3\text{-N}$, and SS increased from 45 to 61 and 117 to 122 of river basin respectively meanwhile BOD_5 decreased from 121 to 116 of river basins as compared to the previous year. [Table 1.1]

Table 1.1: Status of river water quality based on main pollutants, Malaysia, 2023 and 2024

Year	Number of river basins monitored	$\text{NH}_3\text{-N}$			BOD_5			SS		
		C	SP	P	C	SP	P	C	SP	P
2024	144	61	45	38	116	16	12	122	10	12
2023	144	45	58	41	121	12	11	117	10	17

C-Clean SP-Slightly Polluted P-Polluted

Source: Department of Environment

1.4: Physical Conditions

Malaysia is located in the equatorial zone and experiences a warm and humid climate. In general, it has a uniform temperature, high humidity and abundant rainfall. The wind in Malaysia is generally weak and there are periodic changes in wind patterns. Based on these changes, four seasons can be distinguished namely the northeast monsoon (November-March), southwest monsoon (May-September) and two shorter monsoons transition seasons (March-May & October-November)¹.

1.4.1 Mean temperature, rainfall and mean relative humidity and lightning

Mean temperature

Throughout 2024, the average annual temperature in Malaysia is between 16.4°C to 34.0°C. The highest mean temperature in 2024 was recorded at Chuping station (34.0°C), increased 0.9°C as compared to 33.1°C registered at Temerloh station in 2023. Meanwhile, Cameron Highlands station recorded the lowest mean temperature of 16.4°C as compared to 16.0°C in 2023.

Rainfall

Kapit station recorded the highest annual rainfall in 2024 at 5,624.0 mm as compared to the previous year (2023: Mulu; 5,213.6 mm).

However, Kuala Pilah station recorded the lowest annual rainfall of 1,704.3 mm as compared to the previous year 1,429.2 mm (Keningau station).

Kapit station recorded the highest number of rainy days in 2024 with 273 days as compared to 271 days (Mulu station) recorded in 2023. Meanwhile, Kota Bharu station recorded the lowest number of rainy days at 144 days in 2024 as compared to 160 days (Kuala Pilah station) in 2023.

Lightning

KLIA station, Sepang recorded the highest number of lightning days with 312 days as compared to 317 days in 2023. Meanwhile, Keningau and Sri Aman stations recorded the lowest number of lightning days (one day) in 2024 and 2023 respectively.

Mean relative humidity

The mean relative humidity in 2024 was between 72.8 per cent (Bayan Lepas station) and 87.8 per cent (Cameron Highlands station) as compared to 2021 ranging from 75.1 per cent (Bayan Lepas station) and 90.2 per cent (Cameron Highlands station).

[Exhibit 1.3]

¹ Malaysian Meteorological Department Portal, www.met.gov.my

Exhibit 1.3: Summary of climate statistics at meteorological stations, Malaysia, 2023 and 2024

		2023		2024	
		HIGHEST	LOWEST	HIGHEST	LOWEST
	Minimum and maximum mean temperature (°C)	32.2	16.2	32.0	17.0
	Meteorological station	Subang, Selangor	Cameron Highlands, Pahang	Chuping, Perlis	Cameron Highlands, Pahang
	Rainfall (mm)	5,213.6	1,429.2	5,624.0	1,704.3
	Meteorological station	Mulu, Sarawak	Keningau, Sabah	Kapit, Sarawak	Kuala Pilah, Negeri Sembilan
	Number of raining days	271	160	273	144
	Meteorological station	Mulu, Sarawak	Kuala Pilah, Negeri Sembilan	Kapit, Sarawak	Kota Bharu, Kelantan
	Number of days with lightning	317	1	312	1
	Meteorological station	KLIA, Sepang	Sri Aman, Sarawak	KLIA, Sepang	Keningau, Sabah
	Mean relative humidity (%)	90.2	75.1	87.8	72.8
	Meteorological station	Cameron Highlands, Pahang	Bayan Lepas, Pulau Pinang	Cameron Highlands, Pahang	Bayan Lepas, Pulau Pinang

Source: Malaysian Meteorological Department

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COMPONENT 2

ENVIRONMENTAL RESOURCES AND THEIR USE

Mineral Resources

- *Metallic minerals*

Biological Resources

- *Livestock*
- *Aquaculture*
- *Commodity crops*



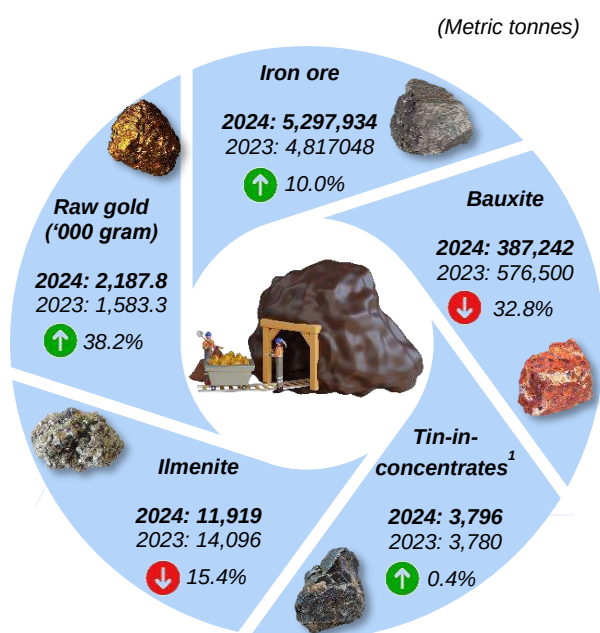
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2.1: Mineral Resources

Metallic minerals are natural substances that have a high concentration of a specific metals. These minerals are typically found in the earth's crust and are valuable resources because they can be extracted and processed to obtain the metal. Metallic minerals are used in various industries, such as construction, manufacturing, electronics and transportation. Some commonly found metallic minerals were iron, copper, aluminium, gold, silver, and lead.

Production of tin-in-concentrates, iron ore and raw gold in 2024 showed an increase between 0.4 per cent and 38.2 per cent as compared to 2023. [Exhibit 2.1]

Exhibit 2.1: The production of selected metallic minerals, Malaysia, 2023 and 2024



Source: Department of Mineral and Geoscience

Note: ¹ Tin-in-concentrates refer to tin content of in tin ore concentrates

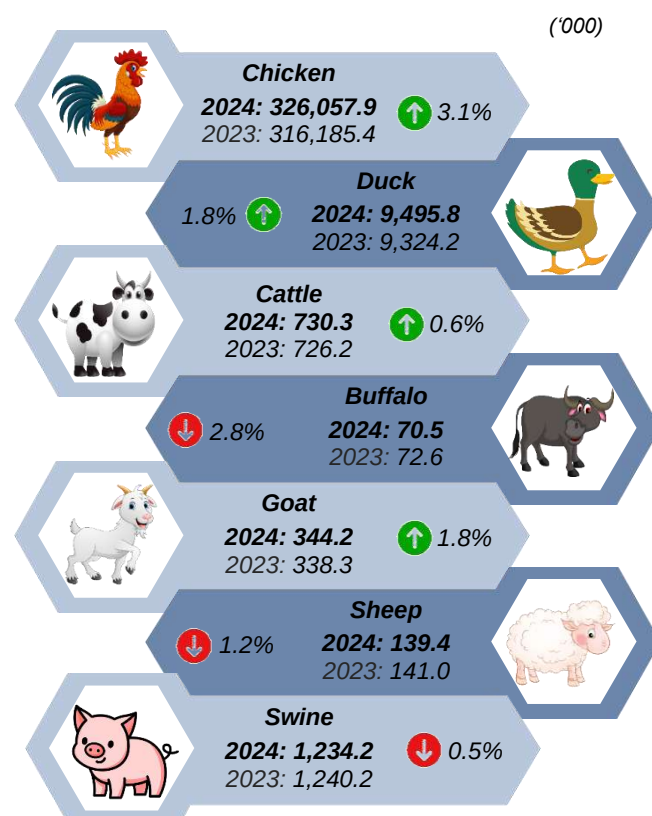
↑ ↓ Growth rate (%)

2.2: Biological Resources

One of the main biological resources in Malaysia is livestock. Livestock refers to domesticated animals that are raised for various purposes, primarily for food production and other agricultural uses. Livestock can include animals such as cattle, sheep, goats, swine, poultry and various other animals that are kept on farms or ranches.

The number of chickens recorded an increase of 3.1 per cent, duck (1.8%), goats (1.8%) and cattle (0.6%) in 2024. Meanwhile, the number of swine declined by 0.5 per cent followed by sheep (-1.2%) and buffaloes (-2.8%). [Exhibit 2.2]

Exhibit 2.2: Number of livestock, Malaysia, 2023 and 2024



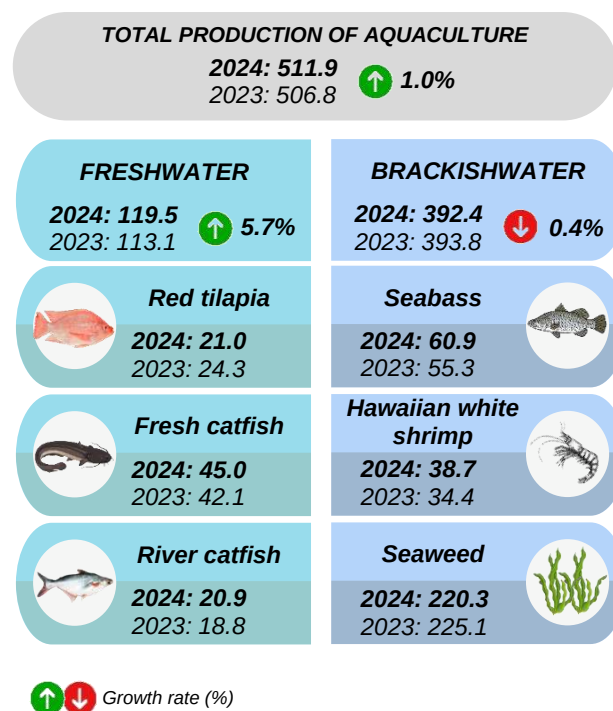
Source: Department of Veterinary Services

Aquaculture is the practice of farming aquatic organisms such as fish, shellfish and aquatic plants, in controlled environments like ponds, tanks, and ocean enclosures. Under the Fisheries Act 1985, aquaculture is the breeding of fish fry or the rearing of fish breeding through a livestock enterprise for the whole or part of its life cycle.

Production of the aquaculture industry amounted to 511.9 thousand metric tonnes in 2024, increased by 1.0 per cent as compared to 2023. The production of freshwater rose by 5.7 per cent to 119.5 thousand metric tonnes led by fresh catfish production (45.0 thousand metric tonnes) followed by red tilapia (21.0 thousand metric tonnes) and river catfish (20.9 thousand metric tonnes). Meanwhile, the production of brackishwater aquaculture contributed 76.7 per cent of the total aquaculture production. Three main contributors to the brackishwater aquaculture production were seaweed (220.3 thousand metric tonnes), seabass (60.9 thousand metric tonnes) and Hawaiian white shrimp (38.7 thousand metric tonnes). **[Exhibit 2.3]**

Exhibit 2.3: Aquaculture production, Malaysia, 2023 and 2024

('000 metric tonnes)

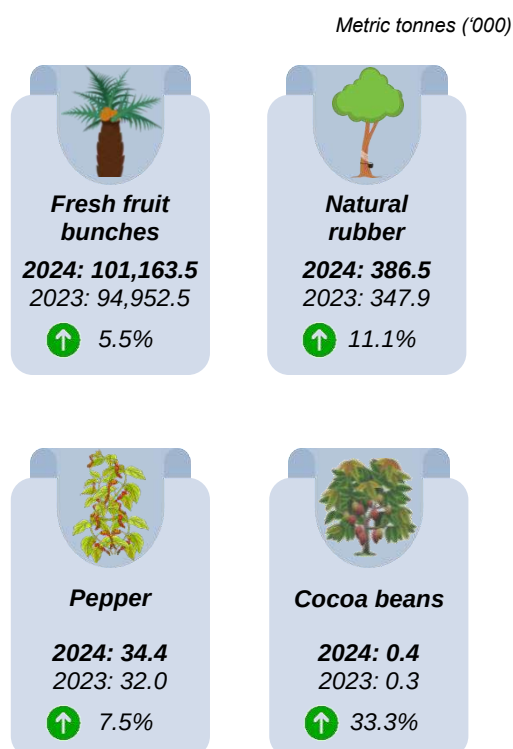


Source: Department of Fisheries Malaysia

Commodity crops are grown in large quantities primarily for the purpose of selling and trading as raw materials, rather than for direct human consumption. These crops are typically used as inputs in various industries, such as food production, animal feed, biofuels, and industrial manufacturing. Commodity crops are a fundamental part of the global agricultural economy.

Production of all selected commodity crops showed an increase in 2024 as compared to 2023. Fresh fruit bunches rose 5.5 per cent, natural rubber (11.1%), pepper (7.5%) and cocoa beans (33.3%). **[Exhibit 2.4]**

Exhibit 2.4: Production of selected commodity crops, Malaysia, 2023 and 2024



Sources: Department of Agriculture, Malaysia, Malaysian Palm Oil Board, Malaysian Cocoa Board, Malaysia Pepper Board, Malaysian Rubber Board and Rubber Industry Smallholders Development Authority

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COMPONENT 3

RESIDUALS

Generation and Management of Wastewater

- *Sewerage facilities*

Generation and Management of Waste

- *Scheduled wastes*
- *Clinical wastes*

Release of Chemical Substances

- *Production and imports of fertilisers*



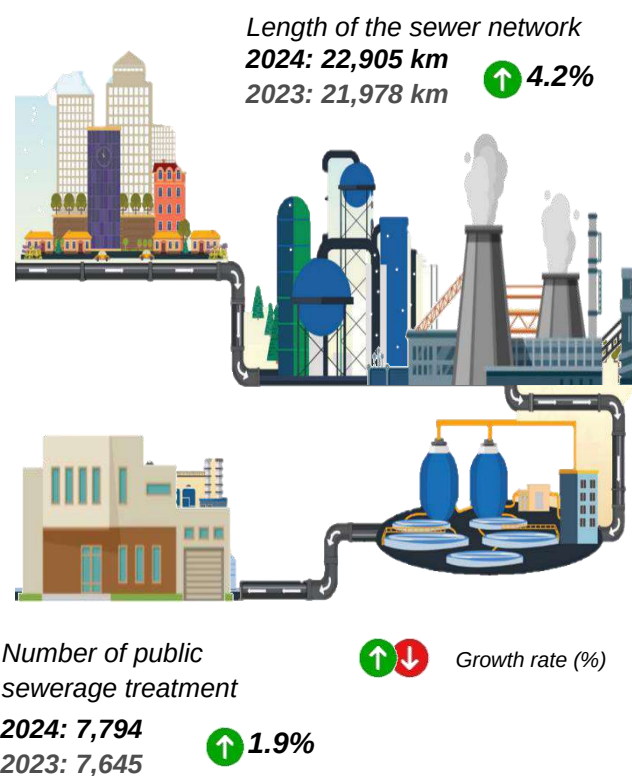
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3.1: Generation and Management of Wastewater

Systematic and efficient sewage management is very important in ensuring the quality of the environment is maintained and in preventing the spread of waterborne infectious diseases. Based on Indah Water Konsortium (IWK), sewage treatment processes consist of two types of treatment which are aerobic (with oxygen utilisation to breakdown organic matter) and anaerobic (without oxygen utilisation).

The length of the sewer network recorded in 2024 was 22,905 km (2023: 21,978 km) with the number of public sewage treatment plants of 7,794 (2023: 7,645) in line with the population growth and development of new housing and industrial areas . **[Exhibit 3.1]**

Exhibit 3.1: Sewerage facilities, Malaysia, 2023 and 2024



Source: National Water Service Commission

3.2: Generation and Management of Waste

3.2.1 Scheduled wastes

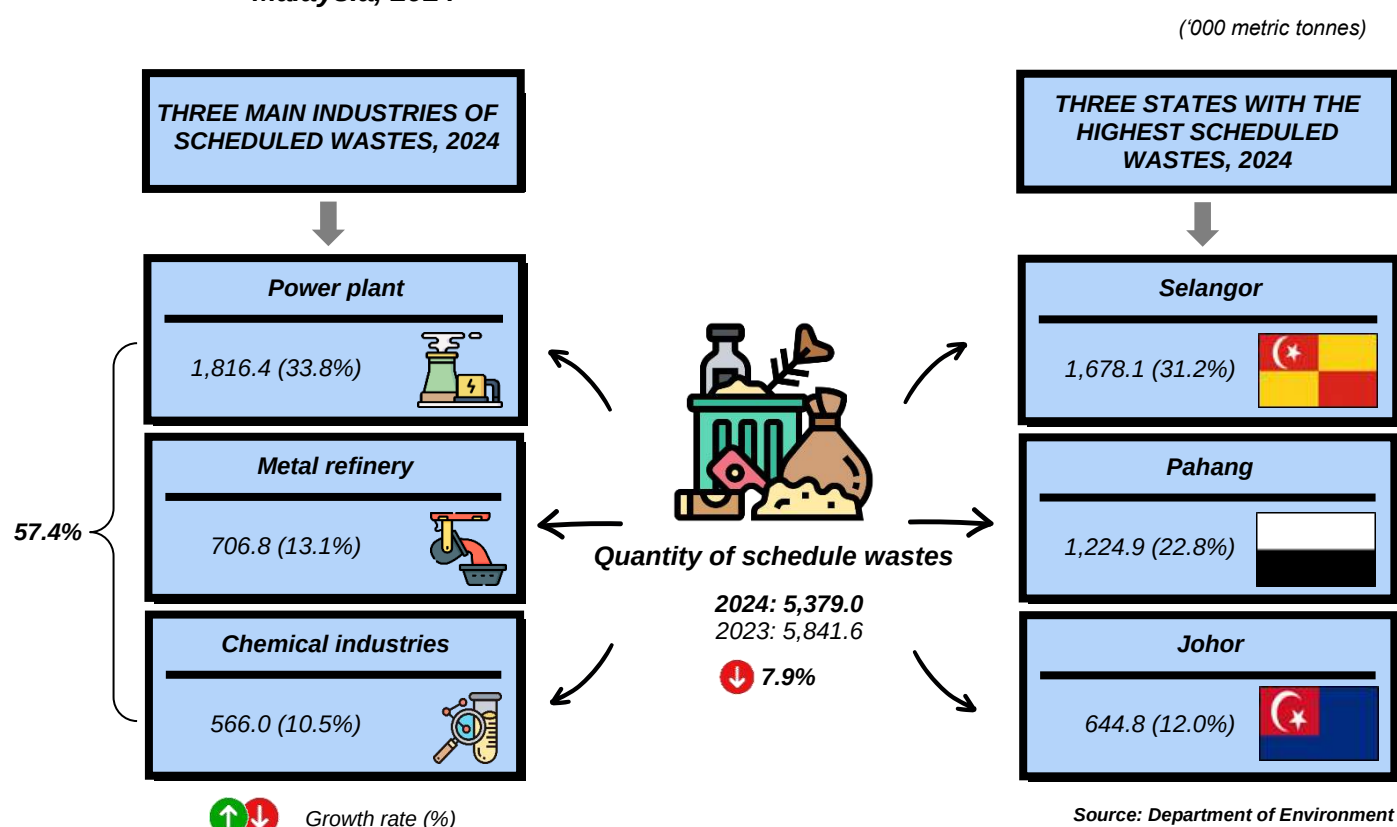
Scheduled wastes refer to the waste category listed in the First Schedule Environmental Quality Regulation (Scheduled Wastes) Regulations 2005. It is also defined as toxic and hazardous wastes generated by industries, agriculture, workshops, scheduled wastes contractors, domestic activities and clinical wastes from hospitals.

A total of 5,379.0 thousand metric tonnes of scheduled wastes was produced in 2024, a decrease of 1.9 per cent as compared to 5,481.6 thousand metric tonnes reported in 2023. Selangor contributed the highest amount

of scheduled wastes at 31.2 per cent, followed by Pahang (22.8%) and Johor (12.0%).

Three main industries contributed 57.4 per cent of the total scheduled wastes were power plants (33.8%), metal refinery (13.1%) and chemical industries (10.5%) in 2024. **[Exhibit 3.2]**

Exhibit 3.2: Quantity of scheduled wastes by the top three main industries and states, Malaysia, 2024



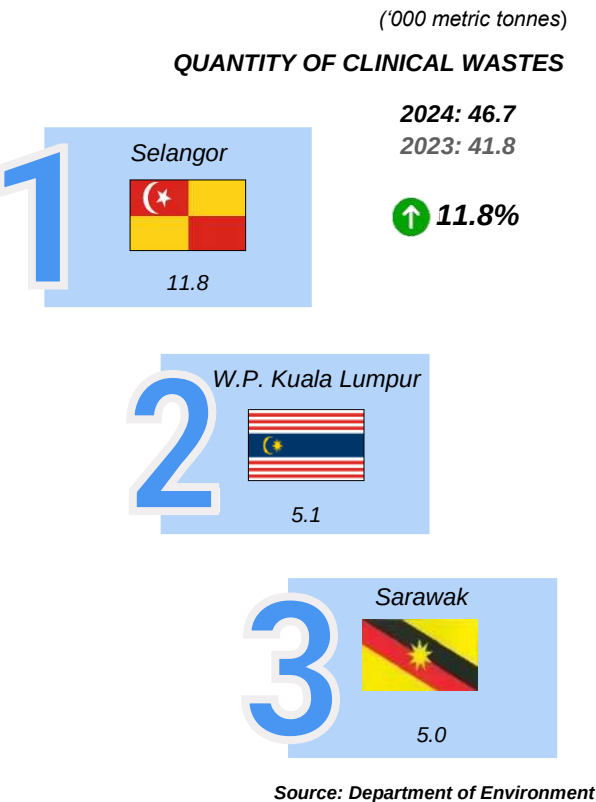
3.2.2 Clinical wastes

Clinical wastes refers to any waste which consists wholly or partly of human tissues, blood or body fluids, excretions, drugs or pharmaceutical products and others. It is classified as scheduled wastes under the First Schedule Environmental Quality (Scheduled Wastes) Regulations 2005.

The quantity of clinical wastes in 2024 was 46.7 thousand metric tonnes with an increase of 11.8 per cent as compared to 2023.

Three states recorded the largest amount of clinical wastes namely Selangor (11.8 thousand metric tonnes), W.P. Kuala Lumpur (5.1 thousand metric tonnes) and Sarawak (5.0 thousand metric tonnes). **[Exhibit 3.3]**

Exhibit 3.3: Three states with the highest quantity of clinical wastes, Malaysia, 2024



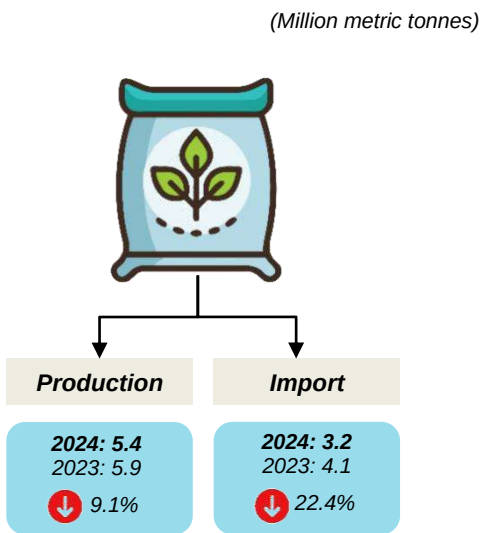
Growth rate (%)

3.3: Release of Chemical Substances

Fertilisers are substances or mixtures that are added to soil or plants to provide essential nutrients that promote plant growth and increase crop yield. They are used in agriculture and gardening to address nutrient deficiencies in the soil to ensure that plants have an adequate supply of essential elements required for their development.

Fertiliser production in 2024 was 5.4 million metric tonnes as compared to 5.9 million metric tonnes in 2023, a decrease of 9.1 per cent. Meanwhile, total imports of fertiliser decreased 22.4 per cent from 4.1 million metric tonnes in 2023 to 3.2 million metric tonnes in 2024. [Exhibit 3.4]

Exhibit 3.4: Production and imports of fertilisers, Malaysia, 2023 and 2024



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COMPONENT 4

EXTREME EVENTS AND DISASTER

Natural Extreme Events and Disasters

- *Floods*
- *Earthquakes*

Technological Disasters

- *Oil spill incidents*
- *Road accidents*
- *Fire incidents*



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4.1: Natural Extreme Events and Disasters

A flood is an overflow of water that submerges usually dry land. This can occur for various reasons, including heavy rainfall, snowmelt, dam or levee failures, or the rapid melting of ice or glaciers. Flooding can have devastating effects on communities, infrastructure, and the environment.

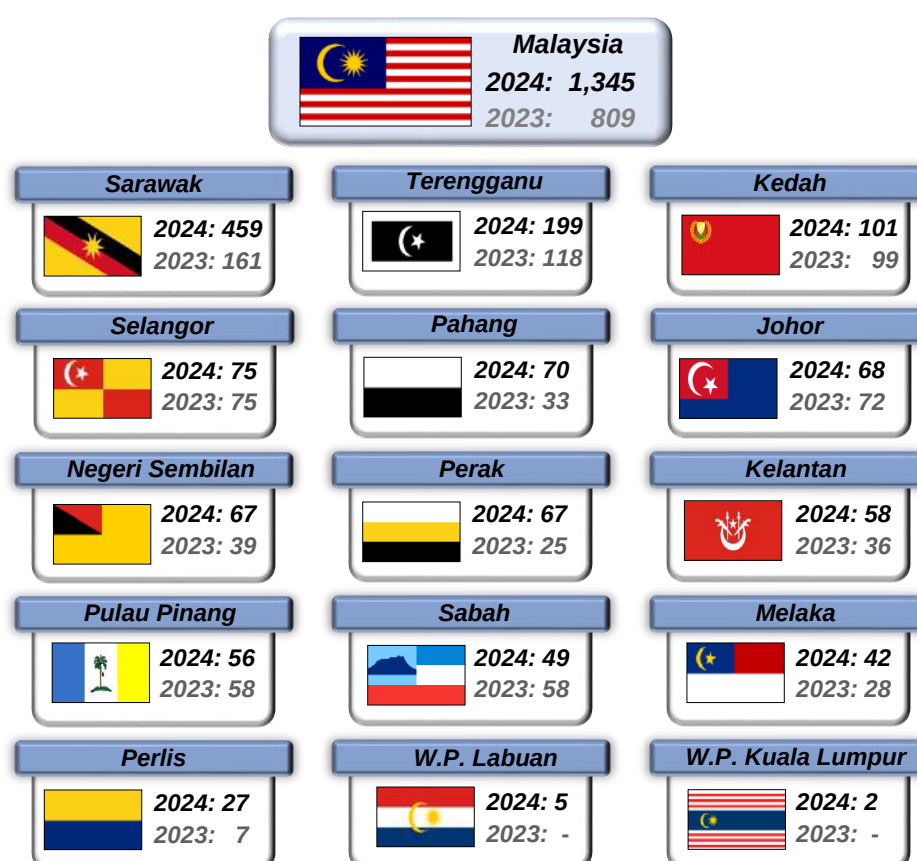
The number of flood incidents reported in 2024 was 1,345 in which Sarawak recorded the highest number of flood incidents at 459, followed by Terengganu (199) and Kedah 101 incidents. **[Exhibit 4.1]**

Malaysia is close to the two most seismically active plate boundaries, the inter-plate boundary between the Indo-Australian and Eurasian Plates on the west and the inter-plate boundary between the Eurasian and Philippines Sea Plates on the east whereas earthquakes have been felt in Malaysia¹.

A total of 28 earthquakes were recorded in 2024 with magnitudes ranging from 1.2 to 3.6, as compared to 21 incidents in 2023.

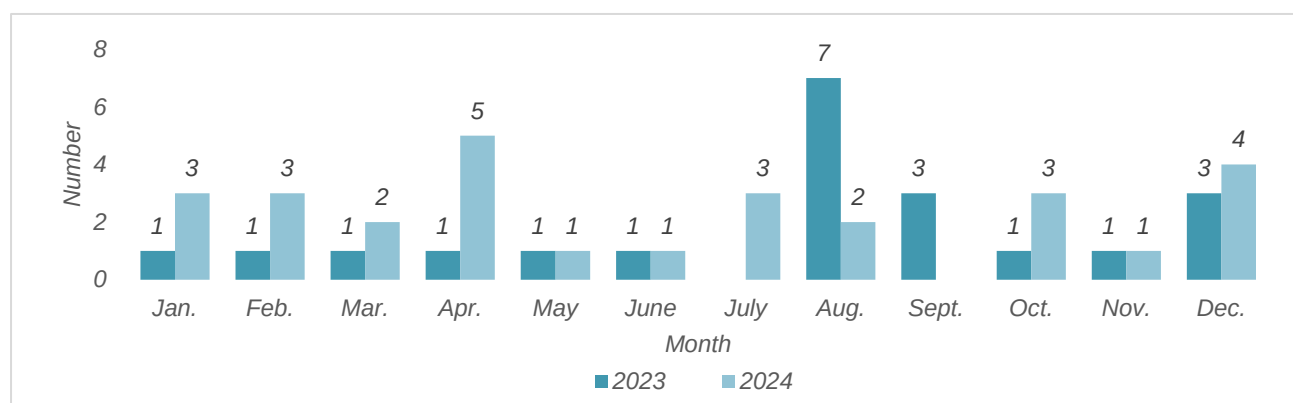
[Chart 4.1]

Exhibit 4.1: Number of flood incidents reported by state, Malaysia, 2023 and 2024



Source: Department of Irrigation and Drainage

¹ Official website portal, www.met.gov.my

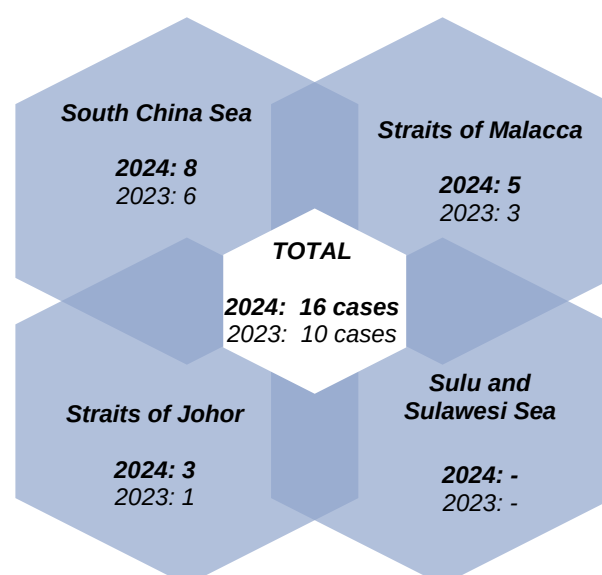
Chart 4.1: Number of earthquakes, Malaysia, 2023 and 2024

4.2: Technological Disasters

A technological disaster is an event caused by a malfunction of a technological structure and/ or some human error in controlling or handling technology. Technological disasters could be considered a human induced disaster. Technological disasters including oil spills, industrial fires, nuclear and hazardous material accidents can adversely affect health and ecological systems.

There have been 16 incidents of oil spills in Malaysian waters throughout 2024. Meanwhile, Sulu and Sulawesi Sea did not record any incidents in 2023 and 2024.

[Exhibit 4.2]

Exhibit 4.2: Oil spill incidents at sea, Malaysia, 2021 and 2022

Source: Department of Environment

Road accidents occur when vehicles collide with each other or with pedestrians, animals, or stationary objects on the road. These accidents can result in a wide range of consequences, including property damage, injuries, and fatalities. In 2024, Malaysia recorded an increase in the road accident cases rate by 6.3 per cent, an increment of 38,093 cases to 638,060 cases as compared to 2023. In addition, 6,469 deaths were recorded in 2024 due to road accidents, as compared to 6,023 deaths in the previous year. [Table 4.1]

Selangor recorded the highest number of road accidents in 2024 with 187,156 cases, increased by 7.9 per cent as compared to 173,487 cases in 2023. This was followed by Johor (97,466 cases) and W.P. Kuala Lumpur (74,443 cases). The three states that recorded the lowest number of road accident cases were Perlis (2,517 cases), W.P. Putrajaya (2,320 cases) and W.P. Labuan (604 cases). [Chart 4.2]



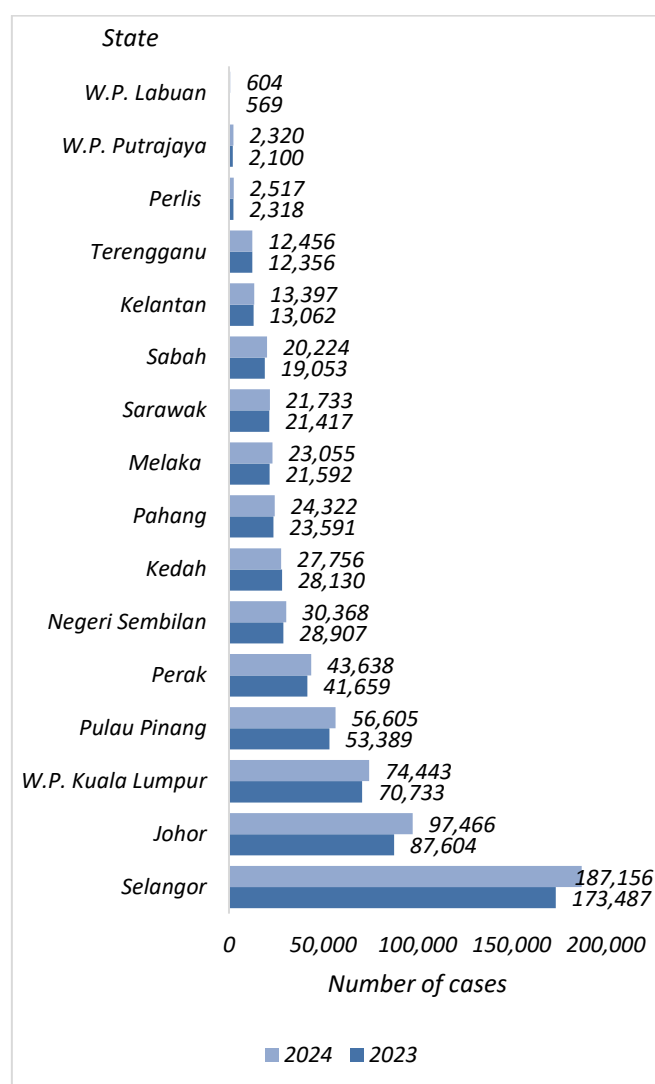
Table 4.1: Number of road accidents and casualties reported by state, Malaysia, 2023 and 2024

Year	Road accidents	Total casualties		
		Injury ¹	Death	Total
2024	638,060	32,498	6,469	38,967
2023	599,967	31,597	6,023	37,620

Source: Investigation and Enforcement of the Traffic Department, Royal Malaysia Police

Note: ¹Injury refers to minor and serious injuries

Chart 4.2: Number of road accidents reported by state, Malaysia, 2023 and 2024

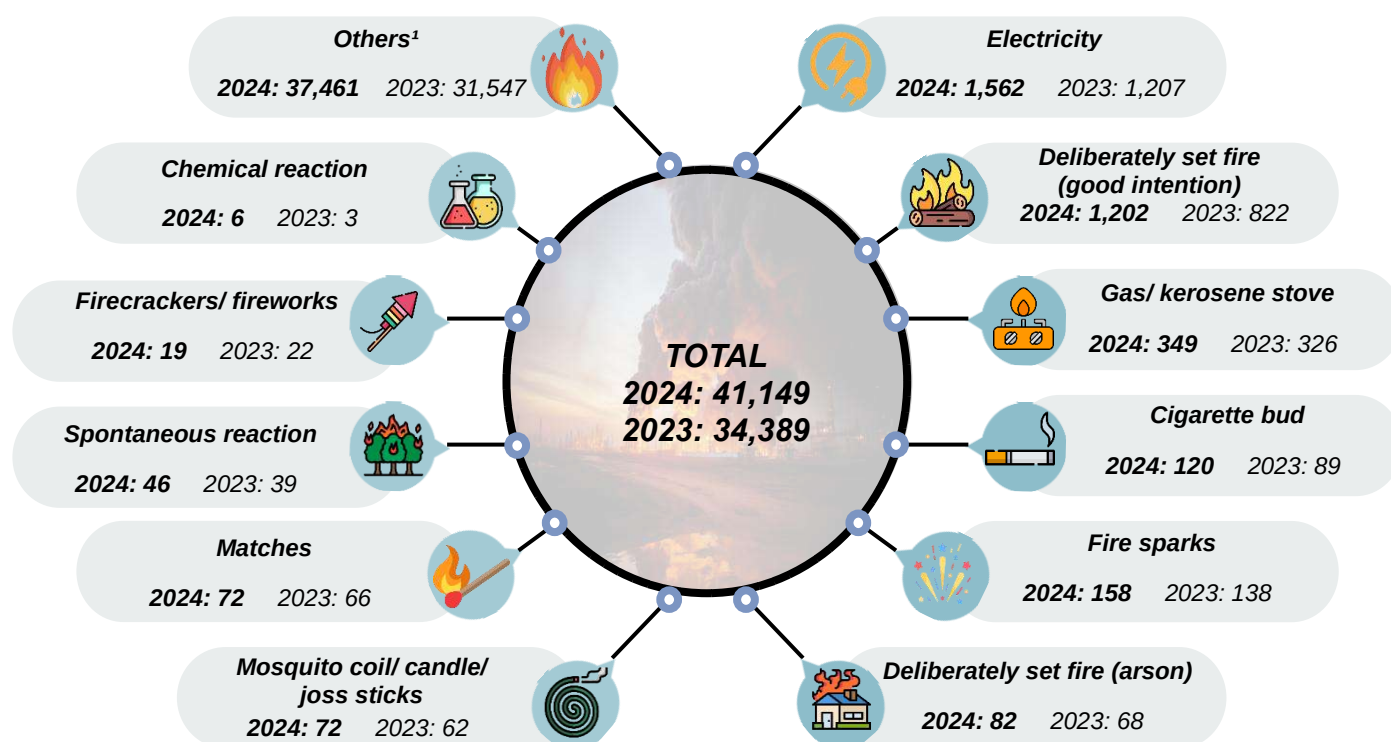


Source: Investigation and Enforcement of the Traffic Department, Royal Malaysia Police

In scientific terms, fire incidents occur due to a process called combustion. Combustion is a chemical reaction that occurs between a fuel source, oxygen (usually from the air) and a heat source. This reaction results in the release of heat, light and the formation of new chemical compounds, typically in the form of flames.

There were 41,149 fire incidents recorded in 2024, an increase of 19.7 per cent as compared to 2023. Electricity, deliberately set fire (good intentions) and gas/ kerosene stove were the main causes that contribute to fire incidents in Malaysia. Meanwhile, chemical reactions, firecrackers/ fireworks and spontaneous reaction recorded the lowest number of cases in 2023. [Exhibit 4.3]

Exhibit 4.3: Fire incidents by type of source, Malaysia, 2023 and 2024



Note: ¹Includes unknown cases

Source: Ministry of Housing and Local Government

COMPONENT 5

HUMAN SETTLEMENTS AND ENVIRONMENTAL HEALTH

Human Settlements

- *Population and density*
- *Households with the accessibility of electricity supply*
- *New registration of motor vehicles*

Environmental Health

- *Food and Water Borne Diseases*
- *Food poisoning*



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5.1: Human Settlements

Malaysia's total population in 2025 is estimated at 34.2 million. Three states recorded the largest population composition in 2025, namely Selangor (7.4 million: 21.6%), Johor (4.2 million: 12.3%) and Sabah (3.8 million: 11.0%). In terms of gender, the male population is 18.0 million (52.5%) meanwhile, the female population is 16.3 million people (47.5%).

The population density of Malaysia is 104 persons per square kilometer in 2025. W.P. Kuala Lumpur has the highest population density which is 8,546 persons per kilometer square, followed by W.P. Putrajaya (2,450 persons per km²) and Pulau Pinang (1,749 persons per km²) while Sarawak is the lowest with 20 persons per kilometer square). **[Exhibit 5.1]**

Exhibit 5.1: Population¹ and density, Malaysia, 2025



Household in urban areas have almost full access (99.9%) to the electricity supply while rural area (90.0%) in 2022. This is also a SDG indicator 7.1.1: Proportion of population with access to electricity. **[Exhibit 5.2]**

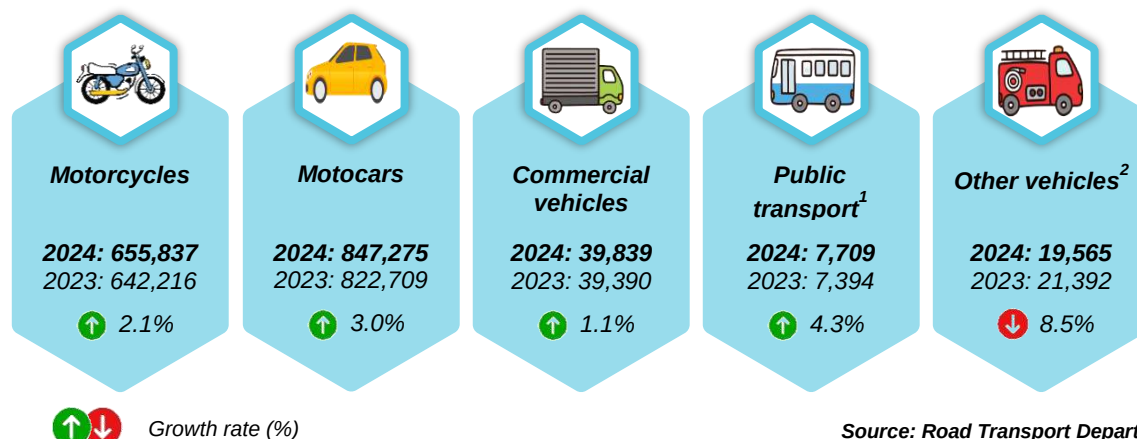
In terms of new registrations of motor vehicles, there were 1,570.2 thousand new motor vehicles registered in 2024, an increase of 2.4 per cent from 1,533.1 thousand in 2023. New registrations for all types of vehicles shows an increment in 2024 as compared to the previous year except for other vehicles. **[Exhibit 5.3]**

Exhibit 5.2: Percentage of households with the accessibility of electricity supply by strata, Malaysia, 2022



Source: Basic Amenities Survey Report 2022

Exhibit 5.3: Number of new registrations of motor vehicles in Malaysia, 2023 and 2024



Source: Road Transport Department

Notes:

¹ Includes buses, taxis and hired cars

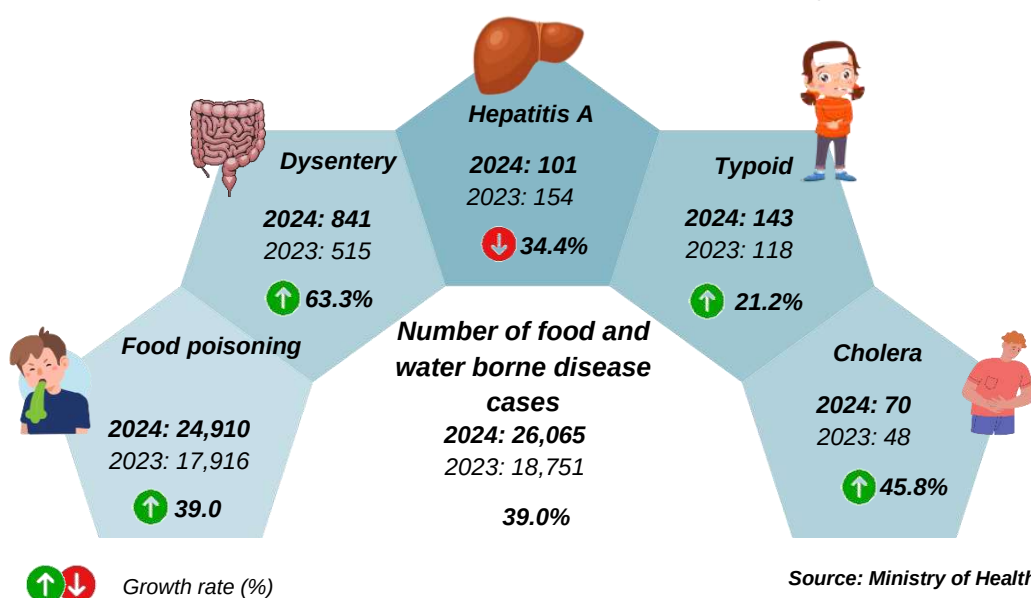
² Includes vehicles such as caravans, government & private fire vehicles, driving school vehicles, hearse, vehicle for disabled, government vehicles, local authority vehicles, ambulance and embassy vehicles.

5.2: Environmental Health

Cholera, Typhoid, Dysentery, Hepatitis A and food poisoning are types of food and water borne diseases. The number of food and water borne diseases cases showed an increase of 39.0 per cent to 26,065 cases in 2024 from 18,751 cases in 2023. Food poisoning recorded the highest number of cases with contribution of 95.6 per cent (24,910 cases). [Exhibit 5.4]

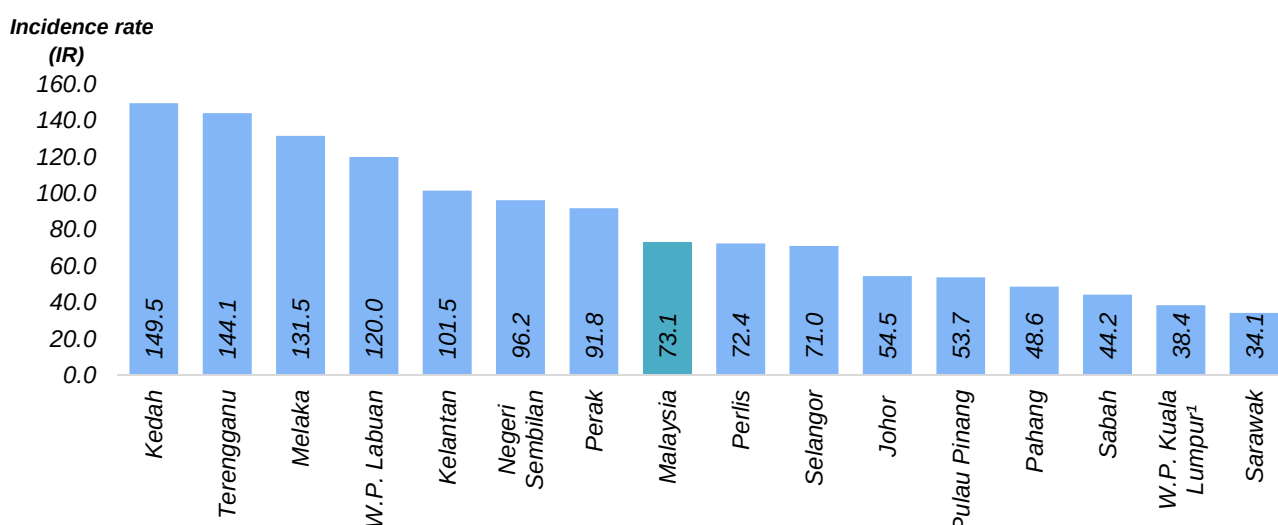
Kedah recorded the highest incidence rate of food poisoning per 100,000 populations at 149.5 in 2024. This was followed by Terengganu (144.1) and Melaka (131.5). [Chart 5.1]

Exhibit 5.4: Number of cases Food and Water Borne Diseases, Malaysia, 2023 and 2024



Source: Ministry of Health Malaysia

Chart 5.1: Incidence rate for food poisoning by state, Malaysia, 2024



Notes:

Refers to incidence rate per 100,000 population

¹ Includes W.P. Putrajaya

Source: Ministry of Health Malaysia

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COMPONENT 6

ENVIRONMENTAL PROTECTION, MANAGEMENT AND ENGAGEMENT

Environmental Protection and Resource Management Expenditure

- *Summonses issued for black smoke emission*
- *Environmental protection expenditure*



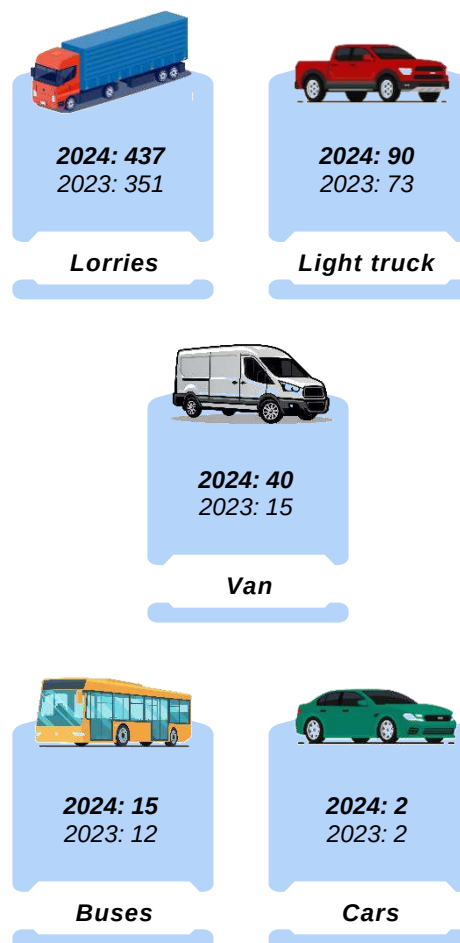
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6.1: Black smoke emission in Malaysia

Emissions of pollution from vehicles are one of the major contributors to air pollution in urban areas. The combustion of fossil fuels in cars, trucks, and other forms of transportation releases pollutants such as carbon monoxide (CO), nitrogen oxides (NOx), and volatile organic compounds (VOCs) into the atmosphere. Efforts to reduce the impact of vehicle emissions on air pollution include the development and adoption of cleaner vehicle technologies such as electric vehicles and hybrids, the use of cleaner fuels, public transport ride and carpooling campaign and the implementation of emission control standards and regulations.

A total of 582 summonses for black smoke emissions by vehicles were issued by the Department of Environment in 2024 as compared to 453 summonses in 2023. Lorries recorded the highest number of summonses at 437 (75.1%) as compared to other motor vehicles. **[Exhibit 6.2]**

Exhibit 6.1: Number of summonses issued for black smoke emission by type of vehicles, Malaysia, 2023 and 2024



Source: Department of Environment

6.2: Environmental Protection and Resource Management Expenditure

Environmental protection expenditure refers to the financial resources allocated by governments, organizations, or individuals to prevent, mitigate, or address environmental problems as well as to protect natural ecosystems. These expenditures are aimed at reducing the negative impact of human activities on the environment and promoting sustainability.

Environmental protection expenditure performance for the year 2022 recorded an increase of 18.4 per cent to RM3.7 billion as compared to RM3.1 billion in 2021.

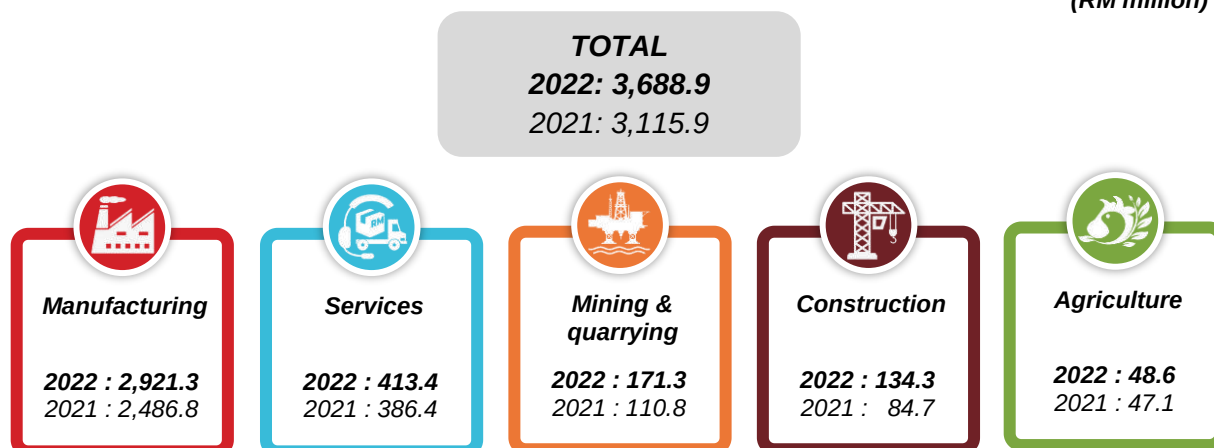
The manufacturing sector spent RM2,921.3 million or 79.2 per cent to the overall environmental protection expenditure in 2022, followed by services sector RM413.4 million (11.2%) and mining and quarrying sector RM171.3 million (4.6%). All sectors showed an increase in environmental protection expenditure.

[Exhibit 6.1]



Exhibit 6.2: Environmental protection expenditure by sector, Malaysia, 2021 and 2022

(RM million)



Source: Economic Census 2023 – Environmental Protection Expenditure

JADUAL STATISTIK

STATISTICAL TABLES



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KOMPONEN COMPONENT 1

KEADAAN DAN KUALITI ALAM SEKITAR

ENVIRONMENTAL CONDITIONS AND QUALITY



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Jadual 1.1: Purata suhu, jumlah hujan dan purata kelembapan relatif, Malaysia, 2020-2024

Table 1.1: Mean temperature, total rainfall and mean relative humidity, Malaysia, 2020-2024

Negeri/ Stesen meteorologi terpilih (ketinggian dari purata paras laut dalam meter)	Tahun <i>Year</i>	Purata suhu (°C) <i>Mean temperature</i>		Hujan <i>Rainfall</i>		Purata kelembapan relatif
<i>State/ Selected meteorological station (height above mean sea level in metres)</i>		Min.	Maks. <i>Max.</i>	Jumlah (mm) <i>Total (mm)</i>	Bil. hari <i>No. of days</i>	<i>Mean relative humidity (%)</i>
Johor						
Batu Pahat (6.3 m)	2020	24.4	32.4	2,089.6	197	82.3
	2021	24.2	32.1	2,668.4	193	82.5
	2022	24.2	32.0	2,864.2	227	83.1
	2023	24.6	32.3	Def.	Def.	83.1
	2024	25.0	32.7	2,098.0	197	83.6
Kluang (88.1 m)	2020	24.1	31.9	2,574.8	196	82.8
	2021	23.8	31.7	2,682.1	185	82.6
	2022	23.8	31.7	2,663.7	197	83.4
	2023	24.1	31.9	3,035.2	195	84.7
	2024	24.3	32.1	2,595.8	213	84.1
Mersing (43.6 m)	2020	24.2	31.6	2,392.8	177	78.3
	2021	23.9	31.4	2,317.7	172	84.2
	2022	24.1	31.5	2,817.8	200	83.9
	2023	24.1	31.7	3,884.8	194	84.8
	2024	24.4	32.0	2,947.5	181	84.1
Senai (37.8 m)	2020	24.2	32.4	2,778.0	208	84.0
	2021	23.9	32.1	2,872.6	202	83.7
	2022	23.9	32.2	2,489.4	205	83.6
	2023	24.2	32.4	3,081.7	199	83.7
	2024	24.5	32.6	3,301.6	215	83.5
Kedah						
Alor Setar (3.9 m)	2020	24.3	33.0	2,408.4	195	83.6
	2021	24.0	32.5	2,272.0	168	82.2
	2022	24.1	32.2	2,193.6	202	83.0
	2023	24.4	32.5	2,460.4	178	78.5
	2024	Def.	Def.	Def.	Def.	77.5
Pulau Langkawi (6.4 m)	2020	25.7	32.5	2,731.6	189	80.9
	2021	25.4	32.0	2,819.6	178	85.4
	2022	25.5	31.8	2,940.0	213	78.4
	2023	25.7	32.3	2,831.9	170	76.1
	2024	26.1	32.9	2,594.1	163	75.7
Kelantan						
Gong Kedak (6.0 m)	2020	24.2	31.5	3,808.0	175	82.4
	2021	23.9	31.3	3,065.8	203	82.3
	2022	23.9	31.3	4,508.6	213	84.6
	2023	24.3	31.6	4,230.5	199	82.7
	2024	24.8	32.3	3,803.0	155	80.5
Kota Bharu (4.4 m)	2020	24.6	31.6	2,984.8	165	81.1
	2021	24.3	31.2	2,527.6	168	81.7
	2022	24.1	31.0	4,045.7	202	83.5
	2023	24.6	31.5	3,486.8	183	81.9
	2024	25.0	31.8	2,682.4	144	79.6

Jadual 1.1: Purata suhu, jumlah hujan dan purata kelembapan relatif, Malaysia, 2020-2024 (samb.)

Table 1.1: Mean temperature, total rainfall and mean relative humidity, Malaysia, 2020-2024 (cont'd)

Negeri/ Stesen meteorologi terpilih (ketinggian dari purata paras laut dalam meter)	Tahun Year	Purata suhu (°C) Mean temperature		Hujan Rainfall		Purata kelembapan relatif
State/ Selected meteorological station (height above mean sea level in metres)		Min.	Maks. Max.	Jumlah (mm) Total (mm)	Bil. hari No. of days	Mean relative humidity (%)
Kelantan						
Kuala Krai	2020	23.5	32.9	2,776.4	190	83.4
(34.9 m)	2021	23.1	32.4	Def.	Def.	85.4
	2022	23.4	32.3	3,220.0	203	86.2
	2023	23.6	32.7	3,172.0	203	85.6
	2024	23.9	33.3	2,794.0	231	83.0
Melaka						
Melaka	2020	24.0	32.3	1,712.2	160	79.3
(8.5 m)	2021	24.1	31.7	2,506.0	175	80.5
	2022	24.2	31.6	2,643.8	206	80.8
	2023	24.4	31.8	2,240.7	199	81.0
	2024	25.0	32.4	2,236.5	189	79.8
Negeri Sembilan						
Kuala Pilah	2020	23.9	31.9	1,871.0	177	81.3
(144.0 m)	2021	23.2	32.0	1,819.2	163	83.4
	2022	23.2	31.9	2,227.4	203	84.7
	2023	23.3	31.9	1,800.4	160	81.6
	2024	23.7	32.3	1,704.3	179	82.9
Pahang						
Batu Embun, Jerantut	2020	23.6	33.0	1,997.0	188	84.6
(59.5 m)	2021	23.6	32.6	2,669.4	173	83.7
	2022	23.7	32.7	2,143.5	189	84.4
	2023	23.5	32.6	2,019.1	183	84.0
	2024	23.1	32.3	2,415.4	178	79.7
Cameron Highlands ¹	2020	15.9	22.7	2,875.0	257	89.4
(1,545.0 m)	2021	15.7	22.3	3,263.6	243	88.7
	2022	15.8	22.4	3,151.8	263	88.1
	2023	16.0	22.4	2,931.5	249	90.2
	2024	16.4	23.0	3,002.0	240	87.8
Kuantan	2020	24.1	32.3	2,409.2	180	75.5
(15.2 m)	2021	23.9	31.9	Def.	Def.	81.9
	2022	23.8	31.9	4,134.0	218	82.8
	2023	24.4	32.2	3,517.2	183	82.2
	2024	24.3	32.2	3,281.8	191	81.8
Muadzam Shah	2020	23.7	32.4	1,995.0	171	80.5
(33.3 m)	2021	23.4	32.2	2,466.6	175	80.2
	2022	23.6	32.2	2,778.2	169	82.1
	2023	24.1	32.6	3,375.4	197	81.4
	2024	24.3	33.0	2,598.4	176	79.0
Temerloh	2020	24.0	33.4	2,034.4	172	82.6
(39.1 m)	2021	23.7	33.2	2,167.9	170	83.2
	2022	23.7	32.9	1,960.6	194	83.2
	2023	23.9	33.1	2,178.7	164	82.3
	2024	24.3	33.5	2,341.9	172	82.8

Jadual 1.1: Purata suhu, jumlah hujan dan purata kelembapan relatif, Malaysia, 2020-2024 (samb.)

Table 1.1: Mean temperature, total rainfall and mean relative humidity, Malaysia, 2020-2024 (cont'd)

Negeri/ Stesen meteorologi terpilih (ketinggian dari purata paras laut dalam meter)	Tahun <i>Year</i>	Purata suhu (°C) <i>Mean temperature</i>		Hujan <i>Rainfall</i>		Purata kelembapan relatif
<i>State/ Selected meteorological station (height above mean sea level in metres)</i>		Min.	Maks. <i>Max.</i>	Jumlah (mm) <i>Total (mm)</i>	Bil. hari <i>No. of days</i>	<i>Mean relative humidity (%)</i>
Perak						
Ipoh (40.1 m)	2020	24.3	33.0	3,269.4	210	79.9
	2021	23.9	32.8	2,965.4	213	79.2
	2022	24.1	33.1	3,345.5	220	77.3
	2023	24.1	32.9	2,987.5	215	80.2
	2024	24.4	33.2	3,767.1	212	81.5
Lubok Merbau, Kuala Kangsar (77.5 m)						
	2020	24.0	33.3	2,053.1	213	82.1
	2021	23.3	32.8	1,988.2	174	81.8
	2022	23.4	32.5	1,945.6	207	82.5
	2023	23.3	32.6	1,617.7	193	82.9
	2024	23.8	33.1	2,054.5	181	83.0
Sitiawan (6.8 m)						
	2020	24.5	32.6	2,115.0	186	83.9
	2021	24.1	32.7	2,057.0	167	81.6
	2022	24.2	32.7	1,943.0	181	81.1
	2023	24.5	32.6	1,945.0	185	80.2
	2024	25.1	33.2	1,996.0	173	79.1
Perlis						
Chuping (21.7 m)	2020	24.3	33.2	2,195.0	172	82.8
	2021	24.1	32.8	2,081.0	168	83.6
	2022	24.3	32.7	2,148.0	189	84.0
	2023	24.4	33.0	1,758.1	166	81.9
	2024	25.0	34.0	2,037.9	160	80.6
Pulau Pinang						
Bayan Lepas (2.5 m)	2020	25.4	32.2	1,831.2	167	77.8
	2021	25.1	32.0	2,232.8	168	77.7
	2022	25.5	32.2	2,140.8	208	76.1
	2023	25.8	32.5	2,206.2	189	75.1
	2024	26.3	32.9	2,096.8	180	72.8
Butterworth (3.3 m)	2020	24.8	32.1	2,160.8	187	79.2
	2021	24.5	31.8	1,982.2	177	78.2
	2022	24.4	31.5	2,034.8	199	82.9
	2023	24.7	31.9	2,060.2	184	80.8
	2024	25.2	32.6	2,184.5	188	74.1
Sabah						
Keningau (319.0 m)	2020	22.6	32.0	1,691.8	189	81.7
	2021	22.1	31.6	1,589.2	192	82.3
	2022	22.3	31.3	2,433.1	234	83.3
	2023	22.4	32.2	1,429.2	184	81.6
	2024	22.2	31.2	1,708.6	194	81.2
Kota Kinabalu (2.1 m)	2020	24.3	32.2	3,456.6	208	82.4
	2021	24.1	31.8	3,584.8	201	82.7
	2022	23.9	31.8	3,566.6	208	83.0
	2023	24.5	32.6	2,161.9	175	80.5
	2024	24.8	32.7	3,046.9	175	81.1

Jadual 1.1: Purata suhu, jumlah hujan dan purata kelembapan relatif, Malaysia, 2020-2024 (samb.)

Table 1.1: Mean temperature, total rainfall and mean relative humidity, Malaysia, 2020-2024 (cont'd)

Negeri/ Stesen meteorologi terpilih (ketinggian dari purata paras laut dalam meter) <i>State/ Selected meteorological station (height above mean sea level in metres)</i>	Tahun <i>Year</i>	Purata suhu (°C) <i>Mean temperature</i>		Hujan <i>Rainfall</i>		Purata kelembapan relatif
		Min.	Maks. <i>Max.</i>	Jumlah (mm) <i>Total (mm)</i>	Bil. hari <i>No. of days</i>	<i>Mean relative humidity (%)</i>
Sabah						
Kudat (3.5 m)	2020	24.6	31.0	2,238.4	165	82.9
	2021	24.3	30.7	2,802.8	201	84.5
	2022	24.4	30.6	2,383.4	185	84.7
	2023	24.1	30.6	3,198.8	191	84.0
	2024	24.2	30.2	2,159.7	167	82.5
Ranau (501.0 m)	2020	20.9	30.1	2,521.4	227	82.3
	2021	20.7	30.0	2,926.0	242	82.7
	2022	21.0	30.0	3,116.0	239	83.1
	2023	21.0	30.3	2,902.2	223	83.6
	2024	21.7	30.7	2,162.0	211	81.8
Sandakan (12.1 m)	2020	24.9	31.4	2,380.3	168	82.3
	2021	24.6	31.2	3,394.0	212	83.7
	2022	24.5	31.2	3,419.6	217	84.0
	2023	24.9	31.8	3,697.9	207	82.2
	2024	25.4	32.0	2,538.0	167	81.9
Tawau (17.5 m)	2020	23.8	31.8	1,947.8	185	85.0
	2021	23.6	31.5	1,974.4	192	86.0
	2022	23.6	31.4	2,303.0	189	84.9
	2023	24.1	32.2	1,847.9	179	83.7
	2024	24.4	32.1	2,201.4	180	83.9
Sarawak						
Bintulu (24.3 m)	2020	24.2	31.8	4,248.0	242	87.4
	2021	23.8	31.9	4,021.2	227	85.6
	2022	23.7	31.7	4,323.4	219	85.9
	2023	23.9	32.0	3,403.9	215	87.4
	2024	24.3	32.3	4,033.9	225	85.8
Kapit (35.0 m)	2020	24.3	32.9	4,751.6	292	86.6
	2021	23.9	32.8	4,346.2	252	86.0
	2022	23.7	32.5	3,923.1	270	85.8
	2023	22.4	31.1	3,393.1	234	85.5
	2024	22.3	30.5	5,624.0	273	86.3
Kuching (20.9 m)	2020	24.0	32.0	4,079.6	258	86.8
	2021	23.6	32.0	4,436.6	236	85.2
	2022	23.6	31.8	3,958.4	250	86.3
	2023	24.0	32.4	4,335.2	248	83.4
	2024	24.3	32.3	5,042.8	249	84.7
Limbang (3.6 m)	2020	23.8	32.9	3,328.0	226	84.0
	2021	23.6	32.5	4,118.6	230	85.3
	2022	23.7	32.4	4,015.9	243	84.1
	2023	23.8	32.8	3,187.1	242	84.2
	2024	24.3	33.3	3,931.9	229	83.5

Jadual 1.1: Purata suhu, jumlah hujan dan purata kelembapan relatif, Malaysia, 2020-2024 (samb.)
Table 1.1: Mean temperature, total rainfall and mean relative humidity, Malaysia, 2020-2024 (cont'd)

Negeri/ Stesen meteorologi terpilih (ketinggian dari purata paras laut dalam meter)	Tahun <i>Year</i>	Purata suhu (°C) <i>Mean temperature</i>		Hujan <i>Rainfall</i>		Purata kelembapan relatif
<i>State/ Selected meteorological station (height above mean sea level in metres)</i>		Min.	Maks. <i>Max.</i>	Jumlah (mm) <i>Total (mm)</i>	Bil. hari <i>No. of days</i>	<i>Mean relative humidity (%)</i>
Sarawak						
Miri (17.0 m)	2020	24.3	31.6	3,344.2	209	86.1
	2021	24.0	31.3	2,877.6	211	85.4
	2022	23.8	31.1	3,327.4	220	85.4
	2023	24.2	31.6	2,522.7	194	84.2
	2024	24.7	32.0	2,953.2	205	84.0
Sibu (30.9 m)	2020	23.8	32.3	3,275.4	258	85.5
	2021	23.6	32.4	3,251.4	235	84.5
	2022	23.3	31.8	4,202.4	249	85.5
	2023	23.7	32.2	3,757.5	245	85.9
	2024	24.0	32.2	3,868.5	249	85.8
Mulu (26.2 m)	2020	23.5	32.9	5,320.8	263	87.7
	2021	23.1	32.9	5,365.8	264	86.0
	2022	23.0	32.4	6,172.8	289	88.3
	2023	20.2	28.8	5,213.6	271	86.9
	2024	17.6	25.0	5,043.6	270	Def.
Sri Aman (9.6 m)	2020	23.6	32.4	3,343.2	242	87.7
	2021	23.2	32.3	3,518.0	222	86.8
	2022	23.3	32.5	3,604.7	232	86.6
	2023	23.1	32.2	3,055.2	209	Def.
	2024	22.7	31.0	4,000.8	251	86.5
Selangor						
KLIA Sepang (16.1 m)	2020	24.8	32.5	2,364.6	179	79.2
	2021	24.2	32.3	2,059.4	165	78.2
	2022	24.3	32.2	2,427.0	194	80.7
	2023	24.5	32.3	2,492.0	197	80.1
	2024	24.9	32.9	2,407.3	193	79.8
Petaling Jaya (58.6 m)	2020	25.5	33.3	3,817.0	212	72.5
	2021	25.3	33.1	Def.	Def.	72.9
	2022	25.1	32.8	Def.	Def.	76.0
	2023	25.3	32.9	Def.	Def.	67.9
	2024	24.6	32.2	Def.	Def.	76.5
Subang (16.6 m)	2020	25.1	33.5	3,236.0	206	78.5
	2021	24.6	33.1	3,564.8	188	75.2
	2022	24.7	32.9	2,810.3	223	77.2
	2023	25.0	33.0	3,197.2	227	77.9
	2024	25.4	33.5	3,321.9	215	77.2
Terengganu						
Kerteh (3.7 m)	2020	24.1	31.3	3,531.0	184	85.8
	2021	23.8	31.0	2,751.6	197	85.3
	2022	23.9	31.1	4,501.0	215	85.4
	2023	24.2	31.1	3,830.2	206	85.0
	2024	24.0	31.2	3,935.1	190	83.0

Jadual 1.1: Purata suhu, jumlah hujan dan purata kelembapan relatif, Malaysia, 2020-2024 (samb.)

Table 1.1: Mean temperature, total rainfall and mean relative humidity, Malaysia, 2020-2024 (cont'd)

Negeri/ Stesen meteorologi terpilih (ketinggian dari purata paras laut dalam meter) <i>State/ Selected meteorological station (height above mean sea level in metres)</i>	Tahun <i>Year</i>	Purata suhu (°C) <i>Mean temperature</i>		Hujan <i>Rainfall</i>		Purata kelembapan relatif
		Min.	Maks. <i>Max.</i>	Jumlah (mm) <i>Total (mm)</i>	Bil. hari <i>No. of days</i>	<i>Mean relative humidity (%)</i>
Terengganu						
Kuala Terengganu (5.2 m)	2020	24.9	31.5	2,946.6	171	82.4
	2021	24.5	31.3	2,285.2	172	82.2
	2022	24.6	31.1	Def.	195	84.8
	2023	25.0	31.5	4,020.2	182	83.6
	2024	25.4	32.1	2,678.4	146	82.1
W.P. Labuan						
Labuan (27.9 m)	2020	25.0	31.4	4,301.3	203	83.1
	2021	24.4	30.9	4,127.5	225	83.3
	2022	24.6	31.0	4,107.4	220	84.0
	2023	24.7	31.1	3,011.6	195	81.6
	2024	25.3	31.7	3,457.9	196	82.8

Nota: ¹Stesen tanah tinggi
Notes: Highland station

Def. Nilai defektif
Defective value

Sumber: Jabatan Meteorologi Malaysia
Source: Malaysia Meteorological Department

Jadual 1.2: Purata tekanan aras laut, kelajuan angin permukaan, sinaran global, penyejatan dan bilangan hari kilat, Malaysia, 2020-2024

Table 1.2: Mean sea level pressure, surface wind speed, global radiation, evaporation and number of days with lightning, Malaysia, 2020-2024

Negeri/ Stesen meteorologi terpilih (ketinggian dari purata paras laut dalam meter) <i>State/ Selected meteorological station (height above mean sea level in metres)</i>	Tahun <i>Year</i>	Purata tekanan aras laut <i>Sea level pressure (hPa)</i>	Purata kelajuan angin permukaan <i>Mean surface wind speed (m/s)</i>	Purata sinaran global <i>Mean global radiation (MJ/m³)</i>	Purata penyejatan <i>Mean evaporation (mm)</i>	Bil. hari kilat <i>No. of days with lightning</i>
Johor						
Batu Pahat (6.3 m)	2020	1,009.8	0.9	n.a.	3.80	n.a.
	2021	1,009.3	0.7	n.a.	3.60	134
	2022	1,009.3	0.7	n.a.	3.60	134
	2023	1,010.4	0.8	n.a.	3.28	101
	2024	1,009.9	0.8	n.a.	Def.	85
Kluang (88.1 m)	2020	1,010.3	1.8	n.a.	3.70	n.a.
	2021	1,010.2	1.7	16.90	3.40	n.a.
	2022	1,009.7	1.3	16.27	3.04	166*
	2023	1,010.7	1.4	Def.	Def.	114
	2024	1,010.1	1.4	14.71	Def.	72
Mersing (43.6 m)	2020	1,009.8	2.9	n.a.	3.70	n.a.
	2021	1,009.7	2.9	n.a.	3.40	n.a.
	2022	1,009.2	2.6	n.a.	3.10	25*
	2023	1,010.3	3.1	n.a.	3.13	11
	2024	1,009.7	3.2	n.a.	2.70	10
Senai (37.8 m)	2020	1,009.5	1.6	16.33	3.30	186
	2021	1,009.4	1.5	16.00	3.50	187
	2022	1,008.9	1.4	16.11	3.85	149
	2023	1,010.0	1.5	Def.	Def.	46
	2024	1,009.6	1.5	15.23	Def.	65
Kedah						
Alor Setar (3.9 m)	2020	1,009.6	1.7	18.96	3.90	198
	2021	1,009.6	1.7	18.30	3.70	153
	2022	1,009.1	1.6	18.07	3.38	208
	2023	1,010.3	1.7	Def.	Def.	125
	2024	997.2	1.8	18.66	Def.	Def.
Pulau Langkawi (6.4 m)	2020	1,009.7	1.9	18.69	4.70	255
	2021	1,009.8	1.8	17.10	4.30	240
	2022	1,009.3	1.7	18.15	3.99	206
	2023	1,010.4	1.8	18.76	Def.	242
	2024	1,009.8	1.9	18.49	Def.	209
Kelantan						
Gong Kedak (6.0)	2020	1,009.6	1.5	n.a.	n.a.	190
	2021	1,009.6	1.4	n.a.	n.a.	217
	2022	1,009.0	1.4	n.a.	n.a.	243
	2023	1,010.3	Def.	n.a.	n.a.	159
	2024	1,009.6	1.6	n.a.	3.85	114

Jadual 1.2: Purata tekanan aras laut, kelajuan angin permukaan, sinaran global, penyejatan dan bilangan hari kilat, Malaysia, 2020-2024 (samb.)

Table 1.2: Mean sea level pressure, surface wind speed, global radiation, evaporation and number of days with lightning, Malaysia, 2020-2024 (cont'd)

Negeri/ Stesen meteorologi terpilih (ketinggian dari purata paras laut dalam meter)	Tahun Year	Purata tekanan aras laut Sea level pressure (hPa)	Purata kelajuan angin permukaan Mean surface wind speed (m/s)	Purata sinaran global Mean global radiation (MJ/m ³)	Purata penyejatan Mean evaporation (mm)	Bil. hari kilat No. of days with lightning
State/ Selected meteorological station (height above mean sea level in metres)						
Kelantan						
Kota Bharu (4.4 m)	2020	1,010.0	2.4	18.76	4.20	201
	2021	1,010.0	2.2	18.90	4.00	201
	2022	1,009.4	2.0	18.41	4.35	249
	2023	1,010.6	Def.	Def.	4.24	155
	2024	1,009.9	2.6	18.45	4.87	151
Kuala Krai (34.9 m)	2020	1,009.9	0.9	17.06	4.20	n.a.
	2021	1,009.9	0.9	17.20	3.70	114
	2022	1,009.3	0.8	16.70	3.42	137
	2023	1,010.5	Def.	Def.	Def.	32
	2024	1,009.9	0.8	16.26	Def.	67
Melaka						
Melaka (8.5 m)	2020	1,007.6	1.7	18.12	4.90	246
	2021	1,010.3	1.6	18.00	4.00	231
	2022	1,009.8	1.7	17.14	4.11	273
	2023	1,010.9	1.8	17.54	Def.	234
	2024	1,010.4	1.9	21.45	Def.	234
Negeri Sembilan						
Kuala Pilah (144.0)	2020	1,007.7	1.5	17.93	3.60	168
	2021	1,005.0	1.4	18.20	Def.	183
	2022	1,004.5	1.2	17.52	3.43	195
	2023	1,005.6	Def.	Def.	Def.	108
	2024	1,004.9	Def.	17.19	2.78	98
Pahang						
Batu Embun, Jerantut (59.5 m)	2020	1,009.8	0.7	n.a.	3.30	n.a.
	2021	1,009.7	0.7	n.a.	3.10	n.a.
	2022	1,009.2	0.7	n.a.	2.95	111*
	2023	1,010.4	0.7	n.a.	Def.	59
	2024	1,009.9	0.7	n.a.	Def.	61
Cameron Highlands ¹ (1,545.0 m)	2020	n.a.	1.9	16.81	2.40	n.a.
	2021	n.a.	1.9	16.60	1.70	187
	2022	n.a.	1.8	15.02	1.45	207
	2023	1,013.6	1.9	Def.	Def.	153
	2024	1,012.7	1.9	15.31	Def.	119
Kuantan (15.2 m)	2020	1,009.8	1.5	17.57	3.80	215
	2021	1,009.8	1.4	17.20	Def.	241
	2022	1,009.2	1.2	16.64	3.77	244
	2023	1,010.4	Def.	Def.	Def.	157
	2024	1,009.7	1.9	16.99	Def.	157

Jadual 1.2: Purata tekanan aras laut, kelajuan angin permukaan, sinaran global, penyejatan dan bilangan hari kilat, Malaysia, 2020-2024 (samb.)

Table 1.2: Mean sea level pressure, surface wind speed, global radiation, evaporation and number of days with lightning, Malaysia, 2020-2024 (cont'd)

Negeri/ Stesen meteorologi terpilih (ketinggian dari purata paras laut dalam meter)	Tahun Year	Purata tekanan aras laut Sea level pressure (hPa)	Purata kelajuan angin permukaan Mean surface wind speed (m/s)	Purata sinaran global Mean global radiation (MJ/m ³)	Purata penyejatan Mean evaporation (mm)	Bil. hari kilat No. of days with lightning
State/ Selected meteorological station (height above mean sea level in metres)						
Pahang						
Muadzam Shah (33.3 m)	2020	1,009.8	0.9	16.93	3.20	n.a.
	2021	1,009.8	0.8	17.10	3.40	n.a.
	2022	1,009.3	0.8	16.59	3.00	127*
	2023	1,010.3	Def.	Def.	2.95	97
	2024	1,009.7	0.9	16.72	Def.	92
Temerloh (39.1 m)	2020	1,009.7	0.9	17.97	3.50	n.a.
	2021	1,009.7	0.8	17.70	3.50	n.a.
	2022	1,009.2	0.8	17.35	3.21	122*
	2023	1,010.3	0.8	Def.	Def.	96
	2024	1,009.8	0.8	17.02	Def.	74
Perak						
Ipoh (40.1 m)	2020	1,009.6	1.7	18.45	4.20	151
	2021	1,009.6	1.7	18.20	4.20	145
	2022	1,009.1	1.7	17.90	4.86	155
	2023	1,010.2	1.7	Def.	Def.	94
	2024	1,009.7	1.8	18.13	Def.	106
Lubok Merbau. Kuala Kangsar (77.5 m)	2020	1,009.6	1.3	17.63	4.20	n.a.
	2021	1,009.7	1.2	18.80	3.70	150
	2022	1,009.2	1.1	18.19	3.79	189
	2023	1,010.3	1.1	Def.	3.67	168
	2024	1,009.8	1.3	18.62	4.06	171
Sitiawan (6.8 m)	2020	1,009.5	1.2	17.52	3.80	207
	2021	1,009.5	1.2	17.00	3.60	209
	2022	1,009.0	1.2	16.95	3.53	214
	2023	1,010.1	1.2	Def.	Def.	196
	2024	1,009.5	1.1	16.93	Def.	207
Perlis						
Chuping (21.7 m)	2020	1,009.8	1.2	18.17	4.90	149
	2021	1,009.8	1.2	18.10	4.60	126
	2022	1,009.3	1.0	16.99	3.97	150
	2023	1,010.4	1.1	17.59	Def.	125
	2024	1,009.9	1.1	17.34	Def.	141
Pulau Pinang						
Bayan Lepas (2.5 m)	2020	1,009.5	2.1	18.81	3.50	234
	2021	1,009.5	2.0	18.50	3.10	233
	2022	1,009.1	1.7	17.79	3.20	267
	2023	1,010.1	1.8	Def.	Def.	176
	2024	1,009.5	2.2	18.84	Def.	185

Jadual 1.2: Purata tekanan aras laut, kelajuan angin permukaan, sinaran global, penyejatan dan bilangan hari kilat, Malaysia, 2020-2024 (samb.)

Table 1.2: Mean sea level pressure, surface wind speed, global radiation, evaporation and number of days with lightning, Malaysia, 2020-2024 (cont'd)

Negeri/ Stesen meteorologi terpilih (ketinggian dari purata paras laut dalam meter)	Tahun Year	Purata tekanan aras laut Sea level pressure (hPa)	Purata kelajuan angin permukaan Mean surface wind speed (m/s)	Purata sinaran global Mean global radiation (MJ/m ³)	Purata penyejatan Mean evaporation (mm)	Bil. hari kilat No. of days with lightning
<i>State/ Selected meteorological station (height above mean sea level in metres)</i>						
Pulau Pinang						
Butterworth	2020	1,009.4	2.2	n.a.	n.a.	211
(3.3 m)	2021	1,009.4	2.1	n.a.	n.a.	171
	2022	1,008.9	2.1	n.a.	n.a.	213
	2023	1,010.0	2.2	n.a.	Def.	109
	2024	1,009.2	2.2	n.a.	4.64	109
Sabah						
Keningau	2020	1,010.7	1.0	19.63	n.a.	n.a.
(319.0 m)	2021	1,010.6	0.9	19.70	n.a.	n.a.
	2022	1,010.2	0.9	19.14	n.a.	n.a.
	2023	1,011.1	1.0	Def.	n.a.	n.a.
	2024	1,010.7	1.0	Def.	n.a.	1
Kota Kinabalu	2020	1,009.5	2.2	20.06	4.80	189
(2.1 m)	2021	1,009.4	2.1	19.10	4.50	184
	2022	1,009.2	2.0	18.89	4.26	212
	2023	1,009.8	Def.	Def.	4.04	176
	2024	1,009.5	2.0	19.40	Def.	157
Kudat	2020	1,009.8	2.4	n.a.	4.70	66
(3.5 m)	2021	1,009.5	2.3	n.a.	4.30	57
	2022	1,009.1	2.0	n.a.	4.17	90
	2023	1,010.2	2.2	Def.	Def.	36
	2024	1,009.9	2.4	20.29	4.41	n.a.
Ranau	2020	1,011.1	1.2	17.82	n.a.	n.a.
(501.0 m)	2021	1,011.0	1.2	18.80	n.a.	92
	2022	1,010.6	1.1	18.99	n.a.	89
	2023	1,011.6	1.1	Def.	n.a.	73
	2024	1,011.2	1.2	19.10	n.a.	62
Sandakan	2020	1,009.7	2.1	19.63	4.90	149
(12.1 m)	2021	1,009.3	2.1	18.60	4.80	163
	2022	1,008.9	2.0	18.63	4.38	176
	2023	1,009.9	2.2	Def.	Def.	153
	2024	1,009.8	2.4	19.18	Def.	132
Tawau	2020	1,009.6	1.6	17.91	4.10	120
(17.5 m)	2021	1,009.3	1.4	17.30	4.00	184
	2022	1,009.1	1.3	17.09	3.72	178
	2023	1,010.0	1.5	Def.	Def.	170
	2024	1,009.9	1.5	18.10	Def.	119

Jadual 1.2: Purata tekanan aras laut, kelajuan angin permukaan, sinaran global, penyejatan dan bilangan hari kilat, Malaysia, 2020-2024 (samb.)

Table 1.2: Mean sea level pressure, surface wind speed, global radiation, evaporation and number of days with lightning, Malaysia, 2020-2024 (cont'd)

Negeri/ Stesen meteorologi terpilih (ketinggian dari purata paras laut dalam meter)	Tahun Year	Purata tekanan aras laut Sea level pressure (hPa)	Purata kelajuan angin permukaan Mean surface wind speed (m/s)	Purata sinaran global Mean global radiation (MJ/m ³)	Purata penyejatan Mean evaporation (mm)	Bil. hari kilat No. of days with lightning
<i>State/ Selected meteorological station (height above mean sea level in metres)</i>						
Sarawak						
Bintulu (24.3 m)	2020	1,009.6	1.8	n.a.	3.80	206
	2021	1,009.5	1.7	n.a.	3.80	187
	2022	1,009.2	1.7	n.a.	3.79	201
	2023	Def.	Def.	n.a.	Def.	150
	2024	1,009.4	1.5	n.a.	Def.	127
Kapit (35.0 m)	2020	1,010.0	0.8	19.21	n.a.	n.a.
	2021	1,009.9	0.8	19.00	n.a.	n.a.
	2022	1,009.5	0.8	18.51	n.a.	n.a.
	2023	1,010.2	Def.	18.65	n.a.	n.a.
	2024	1,001.2	0.8	18.83	n.a.	n.a.
Kuching (20.9 m)	2020	1,009.8	1.7	14.92	2.80	252
	2021	1,009.8	1.6	15.70	3.20	197
	2022	Def.	1.6	14.99	3.20	193
	2023	1,010.3	1.6	Def.	Def.	168
	2024	1,010.1	1.5	14.95	Def.	166
Limbang (3.6 m)	2020	1,009.4	1.3	n.a.	n.a.	154
	2021	1,009.4	1.3	n.a.	n.a.	162
	2022	1,009.0	1.3	n.a.	n.a.	159
	2023	1,010.1	1.3	n.a.	n.a.	125
	2024	1,009.4	1.3	n.a.	n.a.	120
Miri (17.0 m)	2020	1,009.3	2.2	17.79	4.00	149
	2021	1,009.3	2.1	19.30	3.80	115
	2022	1,009.0	2.1	Def.	3.93	149
	2023	1,010.1	2.0	Def.	Def.	113
	2024	1,009.5	1.7	19.00	Def.	104
Sibu (30.9 m)	2020	1,009.7	1.5	16.99	3.70	157
	2021	1,009.5	1.5	17.90	3.90	126
	2022	1,009.0	1.5	17.43	3.79	148
	2023	1,010.2	1.5	Def.	Def.	112
	2024	1,009.7	1.5	17.24	Def.	144
Mulu (26.2 m)	2020	1,009.7	0.9	n.a.	n.a.	n.a.
	2021	1,009.7	0.8	n.a.	n.a.	n.a.
	2022	1,009.3	Def.	n.a.	n.a.	n.a.
	2023	Def.	Def.	n.a.	n.a.	n.a.
	2024	Def.	Def.	n.a.	n.a.	n.a.
Sri Aman (9.6 m)	2020	1,009.6	0.8	n.a.	3.10	n.a.
	2021	1,009.6	0.8	n.a.	3.20	n.a.
	2022	1,009.0	0.7	n.a.	3.12	n.a.
	2023	1,007.5	0.7	n.a.	Def.	1
	2024	1,004.1	0.8	Def.	Def.	n.a.

Jadual 1.2: Purata tekanan aras laut, kelajuan angin permukaan, sinaran global, penyejatan dan bilangan hari kilat, Malaysia, 2020-2024 (samb.)

Table 1.2: Mean sea level pressure, surface wind speed, global radiation, evaporation and number of days with lightning, Malaysia, 2020-2024 (cont'd)

Negeri/ Stesen meteorologi terpilih (ketinggian dari purata paras laut dalam meter)	Tahun Year	Purata tekanan aras laut Sea level pressure (hPa)	Purata kelajuan angin permukaan Mean surface wind speed (m/s)	Purata sinaran global Mean global radiation (MJ/m ³)	Purata penyejatan Mean evaporation (mm)	Bil. hari kilat No. of days with lightning
State/ Selected meteorological station (height above mean sea level in metres)						
Selangor						
KLIA, Sepang (16.1 m)	2020	1,009.5	1.7	18.32	4.50	341
	2021	1,009.5	1.6	18.50	4.50	335
	2022	1,009.0	1.4	17.31	4.20	340
	2023	1,010.0	Def.	Def.	3.75	317
	2024	1,009.6	1.4	17.67	Def.	312
Petaling Jaya (58.6 m)	2020	1,008.0	1.1	n.a.	n.a.	n.a.
	2021	1,008.2	1.1	n.a.	n.a.	n.a.
	2022	Def.	Def.	n.a.	n.a.	n.a.
	2023	Def.	Def.	n.a.	n.a.	n.a.
	2024	1,007.8	Def.	n.a.	n.a.	n.a.
Subang (16.6 m)	2020	1,009.9	1.6	17.06	4.50	288
	2021	1,009.9	1.6	17.10	4.20	302
	2022	1,009.5	1.6	16.66	4.23	307
	2023	1,010.5	1.6	Def.	4.02	302
	2024	1,010.0	1.6	16.67	Def.	289
Terengganu						
Kerteh (3.7 m)	2020	1,009.7	1.7	n.a.	n.a.	n.a.
	2021	1,009.6	1.5	n.a.	n.a.	n.a.
	2022	1,009.1	1.2	n.a.	n.a.	n.a.
	2023	1,010.3	Def.	n.a.	n.a.	n.a.
	2024	1,009.5	1.3	n.a.	n.a.	7
Kuala Terengganu (5.2 m)	2020	1,009.9	2.0	18.59	4.30	141
	2021	1,009.8	2.1	18.60	4.10	184
	2022	1,008.9	1.9	17.82	3.66	222
	2023	1,010.5	Def.	Def.	Def.	189
	2024	1,009.8	2.0	19.00	Def.	140
W.P. Labuan						
Labuan (27.9 m)	2020	1,009.4	1.6	19.65	4.70	199
	2021	1,009.5	1.4	19.20	4.70	239
	2022	1,009.2	1.4	19.04	4.40	227
	2023	1,010.0	Def.	Def.	Def.	198
	2024	1,009.6	1.4	19.69	4.13	156

Nota: ¹Stesen tanah tinggi
Notes: Highland station

***April - Disember 2022, tiada bacaan direkodkan sepanjang Januari - Mac 2022**
April - December 2022, no readings were recorded between January - March 2022

Def. Nilai defektif
Defective value

Sumber: Jabatan Meteorologi Malaysia
Source: Malaysia Meteorological Department

Jadual 1.3: Purata bulanan tekanan aras laut, Malaysia, 2024

Table 1.3: Monthly mean sea level pressure, Malaysia, 2024

hPa

Negeri/ Stesen State/ Station	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Johor												
Batu Pahat	1,011.5	1,012.0	1,010.7	1,008.6	1,008.7	1,010.1	1,009.3	1,010.3	1,009.4	1,010.0	1,009.1	1,009.2
Kluang	1,011.8	1,012.2	1,011.0	1,008.9	1,008.9	1,010.3	1,009.4	1,010.4	1,009.6	1,010.1	1,009.3	1,009.3
Mersing	1,011.4	1,012.0	1,010.8	1,008.4	1,008.3	1,009.7	1,008.9	1,009.9	1,009.0	1,009.6	1,008.8	1,009.0
Senai	1,011.1	1,011.7	1,010.4	1,008.3	1,008.3	1,009.7	1,009.0	1,009.9	1,009.0	1,009.6	1,008.7	1,008.8
Kedah												
Alor Setar	1,011.5	1,011.7	1,010.3	1,008.2	1,008.1	1,009.6	1,008.6	1,010.0	1,009.2	1,010.1	1,009.2	860.4
Langkawi	1,011.6	1,011.9	1,010.6	1,008.4	1,008.4	1,009.9	1,008.9	1,010.2	1,009.3	1,010.2	1,009.3	1,009.4
Kelantan												
Gong Kedak	1,012.3	1,012.8	1,011.1	1,008.3	1,007.9	1,009.1	1,008.1	1,009.4	1,008.4	1,009.5	1,009.1	1,009.7
Kota Bharu	1,012.6	1,013.1	1,011.4	1,008.6	1,008.2	1,009.4	1,008.4	1,009.6	1,008.7	1,009.7	1,009.4	1,010.0
Kuala Krai	1,012.5	1,012.8	1,011.2	1,008.5	1,008.1	1,009.4	1,008.5	1,009.7	1,008.8	1,009.8	1,009.5	1,010.0
Melaka												
Melaka	1,012.0	1,012.4	1,011.1	1,009.1	1,009.1	1,010.5	1,009.7	1,010.8	1,009.9	1,010.5	1,009.6	1,009.7
Negeri Sembilan												
Kuala Pilah	1,006.8	1,007.2	1,004.6	1,003.7	1,003.7	1,005.0	1,004.3	1,005.2	1,004.3	1,004.9	1,004.2	1,004.4
Pahang												
Batu Embun	1,012.1	1,012.4	1,011.0	1,008.6	1,008.5	1,009.9	1,009.0	1,010.1	1,009.1	1,009.9	1,009.1	1,009.4
Cameron Highlands	n.a.	n.a.	1,014.2	1,011.9	1,011.7	n.a.	n.a.	1,013.7	1,012.7	n.a.	1,012.3	1,012.5
Kuantan	1,011.9	1,012.5	1,011.0	1,008.5	1,008.3	1,009.6	1,008.8	1,009.8	1,008.8	1,009.5	1,008.9	1,009.3
Muadzam Shah	1,011.6	1,012.2	1,010.8	1,008.4	1,008.3	1,009.6	1,008.8	1,009.9	1,008.9	1,009.6	1,008.9	1,009.2
Temerloh	1,011.8	1,012.2	1,010.8	1,008.4	1,008.4	1,009.7	1,008.9	1,010.0	1,009.0	1,009.7	1,009.0	1,009.3
Perak												
Ipoh	1,011.2	1,011.5	1,010.4	1,008.4	1,008.4	1,009.8	1,008.9	1,010.2	1,009.3	1,010.1	1,009.1	1,009.2
Lubok Merbau	1,011.3	1,011.6	1,010.5	1,008.5	1,008.4	1,009.9	1,008.9	1,010.3	1,009.4	1,010.2	1,009.2	1,009.3
Sitiawan	1,011.0	1,011.4	1,010.2	1,008.2	1,008.2	1,009.6	1,008.6	1,010.0	1,009.0	1,009.9	1,008.8	1,009.0
Perlis												
Chuping	1,011.8	1,012.1	1,010.7	1,008.3	1,008.2	1,009.7	1,009.6	1,010.0	1,009.2	1,010.1	1,009.3	1,009.6
Pulau Pinang												
Bayan Lepas	1,011.1	1,011.5	1,010.3	1,008.3	1,008.2	1,009.7	1,008.6	1,009.9	1,009.0	1,009.9	1,008.8	1,008.9
Butterworth	1,011.0	1,011.2	1,010.1	1,008.0	1,008.0	1,009.5	1,008.3	1,009.6	1,007.5	1,009.7	1,008.6	1,008.7
Sabah												
Kota Kinabalu	1,010.7	1,011.2	1,010.2	1,008.4	1,008.5	1,009.9	1,009.3	1,010.0	1,008.8	1,009.7	1,008.8	1,008.4
Kudat	1,011.6	1,012.9	1,011.6	1,009.3	1,008.8	1,010.0	1,009.2	1,009.9	1,008.6	1,009.3	1,009.1	1,008.6
Sandakan	1,011.4	1,012.7	1,011.5	1,009.3	1,008.8	1,009.9	1,009.1	1,009.8	1,008.5	1,009.0	1,008.9	1,008.3
Tawau	1,010.9	1,012.1	1,011.1	1,009.5	1,009.1	1,010.4	1,009.7	1,010.2	1,009.2	1,009.4	1,008.8	1,008.1
Keningau	1,012.2	1,012.9	1,011.6	1,009.5	1,009.6	1,011.1	1,010.3	1,010.9	1,010.0	1,010.6	1,009.8	1,009.4
Ranau	1,013.1	1,014.1	1,012.7	1,010.5	1,010.1	1,011.5	1,010.6	1,011.2	1,009.9	1,010.5	1,010.5	1,009.8

Jadual 1.3: Purata bulanan tekanan aras laut, Malaysia, 2024 (samb.)

Table 1.3: Monthly mean sea level pressure, Malaysia, 2024 (cont'd)

Negeri/ Stesen State/ Station	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Sarawak												
Bintulu	1,010.8	1,010.4	1,010.6	1,008.7	1,008.5	1,009.8	1,009.1	1,009.9	1,008.7	1,009.7	1,008.7	1,008.4
Kuching	1,011.3	1,012.2	1,011.2	1,009.2	1,009.2	1,010.5	1,009.7	1,010.6	1,009.5	1,010.1	1,009.0	1,008.6
Miri	1,011.0	1,011.8	1,010.7	1,008.7	1,008.3	1,009.6	1,008.9	1,009.7	1,008.7	1,009.8	1,008.8	1,008.5
Sibu	1,011.3	1,012.1	1,011.1	1,009.3	1,009.0	1,009.7	1,008.9	1,009.8	1,008.6	1,009.6	1,008.7	1,008.3
Limbang	1,011.0	1,011.7	1,010.5	1,008.7	1,008.2	1,009.6	1,008.8	1,009.6	1,008.5	1,009.6	1,008.6	1,008.4
Kapit	906.4	1,011.7	1,010.7	1,009.1	1,008.9	1,010.2	1,009.5	1,010.3	1,009.2	1,010.0	1,009.1	1,008.8
Mulu	1,010.8	1,011.6	788.8	1,008.9	1,008.9	918.0	977.2	1,010.3	1,009.1	Def.	1,002.8	1,008.7
Sri Aman	1,011.4	1,012.3	1,011.2	1,009.2	1,009.2	973.7	974.3	1,010.6	1,009.5	1,010.1	1,009.0	1,008.7
Selangor												
KLIA Sepang	1,011.1	1,011.5	1,010.3	1,008.3	1,008.3	1,009.8	1,008.9	1,010.0	1,009.1	1,009.8	1,008.8	1,009.0
Petaling Jaya	n.a.	n.a.	1,009.0	1,007.0	1,007.0	n.a.	n.a.	1,008.7	1,007.9	n.a.	1,007.5	1,007.6
Subang	1,011.5	1,011.9	1,010.7	1,008.7	1,008.7	1,010.2	1,009.3	1,010.4	1,009.5	1,010.3	1,009.3	1,009.4
Terengganu												
Kerteh	1,012.0	1,012.7	1,011.1	1,008.3	1,007.9	1,009.2	1,008.3	1,009.4	1,008.4	1,008.4	1,008.9	1,009.4
Kuala Terengganu	1,012.5	1,013.1	1,011.4	1,008.5	1,008.0	1,009.2	1,008.3	1,009.5	1,008.6	1,009.4	1,009.0	1,009.6
W.P. Labuan												
Labuan	1,010.7	1,011.5	1,010.4	1,008.6	1,008.7	1,010.0	1,009.3	1,010.1	1,008.8	1,009.6	1,008.7	1,008.4

Sumber: Jabatan Meteorologi Malaysia
Source: Malaysia Meteorological Department

Jadual 1.4: Purata bulanan kelajuan angin permukaan, Malaysia, 2024

Table 1.4: Monthly mean surface wind speed, Malaysia, 2024

m/s

Negeri/ Stesen State/ Station	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Johor												
Batu Pahat	0.6	0.9	0.9	0.8	0.9	0.8	1.2	0.9	0.9	0.8	0.6	0.7
Kluang	2.0	2.5	2.1	1.1	0.9	0.9	1.2	1.0	1.1	0.9	1.1	1.9
Mersing	4.2	4.5	3.6	2.8	2.8	2.8	3.2	3.1	3.0	2.6	2.5	3.2
Senai	2.0	2.3	1.9	1.4	1.1	1.1	1.6	1.3	1.4	1.1	1.1	1.7
Kedah												
Alor Setar	2.2	2.3	1.9	1.8	1.7	1.7	1.4	1.7	1.7	1.8	1.5	1.6
Langkawi	2.6	2.6	2.2	1.8	1.5	1.4	1.6	1.5	1.9	1.4	2.0	2.1
Kelantan												
Gong Kedak	1.8	2.4	1.7	1.8	1.6	1.3	1.2	1.5	1.4	1.4	1.6	2.1
Kota Bharu	3.7	3.4	3.0	2.9	2.6	2.2	2.0	2.2	2.0	2.3	2.4	2.2
Kuala Krai	0.8	1.0	1.0	1.0	1.0	0.9	0.8	0.8	0.7	0.8	0.7	0.7
Melaka												
Melaka	2.7	3.3	2.7	1.6	1.6	1.4	1.7	1.6	1.5	1.5	1.7	2.0
Negeri Sembilan												
Kuala Pilah	1.6	1.8	1.4	Def.	1.0	Def.	1.3	1.3	1.3	1.3	1.1	1.3
Pahang												
Batu Embun	0.6	0.7	0.7	0.8	0.8	0.7	0.8	0.7	0.6	0.7	0.6	0.6
Cameron Highlands	2.9	2.4	2.0	1.6	1.5	1.8	1.6	1.4	2.3	1.6	2.0	1.8
Kuantan	2.2	2.3	2.1	1.6	1.6	1.6	1.9	1.9	2.0	1.8	1.7	1.8
Muadzam Shah	1.5	1.5	1.2	0.8	0.7	0.7	0.8	0.8	0.8	0.8	0.7	0.9
Temerloh	0.8	1.0	1.1	0.9	0.8	0.7	0.8	0.7	0.8	0.8	0.6	0.8
Perak												
Ipoh	1.6	1.8	1.8	1.7	1.8	1.7	1.9	1.8	1.8	1.8	1.7	1.9
Lubok Merbau	1.1	1.5	1.4	1.4	1.4	1.2	1.3	1.3	1.1	1.2	1.1	1.1
Sitiawan	1.1	1.4	1.3	1.3	1.3	1.3	1.4	1.3	1.2	1.2	1.10.	1.0
Perlis												
Chuping	1.3	1.7	1.5	1.0	0.8	0.9	0.7	0.9	0.9	0.8	1.1	1.2
Pulau Pinang												
Bayan Lepas	2.5	2.6	2.4	2.0	2.3	1.8	2.4	2.2	1.9	1.7	2.1	2.3
Butterworth	2.1	2.6	2.2	2.3	2.2	2.2	2.4	2.2	2.2	2.1	2.1	2.2
Sabah												
Kota Kinabalu	1.8	1.8	1.9	1.9	2.0	2.0	1.9	2.2	2.2	2.3	1.9	1.9
Kudat	3.0	3.2	2.8	2.6	2.2	1.9	2.1	2.2	2.6	2.6	1.8	1.9
Sandakan	3.6	3.7	2.9	2.4	2.3	1.9	1.9	1.9	2.1	2.2	2.1	2.4
Tawau	1.5	1.7	1.7	1.5	1.6	1.3	1.4	1.5	1.8	1.6	1.3	1.2
Keningau	0.9	1.2	1.3	1.2	0.9	0.9	0.9	1.0	1.0	1.1	1.0	1.0
Ranau	1.3	1.3	1.3	1.2	1.0	0.9	1.2	1.1	1.6	1.5	1.0	0.9

Jadual 1.4: Purata bulanan kelajuan angin permukaan, Malaysia, 2024 (samb.)

Table 1.4: Monthly mean surface wind speed, Malaysia, 2024 (cont'd)

m/s												
Negeri/ Stesen State/ Station	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Sarawak												
Bintulu	1.5	1.5	1.7	1.5	1.5	1.4	1.5	1.6	1.7	1.6	1.5	1.5
Kuching	1.4	1.5	1.6	1.5	1.3	1.4	1.6	1.5	1.7	1.5	1.4	1.4
Miri	2.3	2.6	2.5	2.1	1.4	1.4	1.3	1.3	2.0	1.3	0.9	1.2
Sibu	1.5	1.5	1.3	1.4	1.4	1.5	1.4	1.5	1.6	1.5	1.4	1.4
Limbang	1.4	1.5	1.6	1.3	1.2	1.2	1.2	1.2	1.3	1.4	1.2	1.1
Kapit	0.7	0.8	0.8	0.8	0.8	0.8	0.9	1.0	0.9	0.9	1.0	0.8
Mulu	0.8	0.8	0.9	0.8	0.5	0.7	0.5	0.8	0.7	0.9	Def.	0.9
Sri Aman	0.8	0.8	0.7	0.8	0.7	0.7	0.8	0.8	1.0	0.9	0.9	0.9
Selangor												
KLIA Sepang	1.6	2.0	1.5	1.2	1.3	1.3	1.5	1.3	1.3	1.3	1.2	1.3
Petaling Jaya	1.0	1.1	1.0	1.0	1.2	1.1	1.3	1.2	1.2	1.2	1.0	Def.
Subang	1.4	1.5	1.5	1.4	1.6	1.6	2.0	1.8	1.8	1.8	1.5	1.5
Terengganu												
Kerteh	2.3	1.8	1.3	1.1	1.1	1.1	1.4	1.5	1.2	0.9	1.0	1.5
Kuala Terengganu	2.9	2.1	1.9	1.8	1.8	1.9	1.9	2.0	1.7	2.1	2.0	2.4
Wilayah Persekutuan Labuan												
Labuan	2.2	2.4	2.3	1.3	0.9	1.0	0.8	1.0	1.2	1.2	1.2	1.1

Sumber: Jabatan Meteorologi Malaysia
Source: Malaysia Meteorological Department

Jadual 1.5: Purata bulanan sinaran global, Malaysia, 2024

Table 1.5: Monthly mean global radiation, Malaysia, 2024

MJ/m²

Negeri/ Stesen State/ Station	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Johor												
Kluang	13.02	19.34	19.22	17.19	15.72	13.89	16.37	0.74	16.56	15.88	13.83	14.73
Senai	14.69	19.11	20.15	16.84	13.10	13.83	16.20	10.23	16.46	14.53	12.97	14.70
Kedah												
Alor Setar	18.94	22.79	21.50	22.39	19.83	18.65	17.20	17.53	16.45	17.77	14.93	15.96
Langkawi	19.43	24.10	23.69	22.80	19.07	17.56	16.66	10.80	16.97	16.47	16.93	17.41
Kelantan												
Kota Bharu	15.40	21.00	22.99	24.53	21.99	17.76	17.00	17.84	18.68	19.47	12.86	11.90
Kuala Krai	11.90	19.13	19.88	20.28	18.34	17.17	15.94	18.27	16.47	17.11	10.93	9.67
Melaka												
Melaka	15.20	19.91	70.32	18.06	18.15	15.36	16.61	15.97	17.69	19.02	16.29	14.81
Negeri Sembilan												
Kuala Pilah	13.74	19.59	20.98	18.90	18.24	16.44	16.62	17.72	16.90	17.37	15.45	14.29
Pahang												
Cameron Highlands	15.39	17.40	18.61	17.90	15.70	15.19	16.43	13.83	13.70	14.88	12.58	12.10
Kuantan	12.46	18.20	20.42	19.25	18.25	18.01	15.24	18.45	18.56	19.69	13.63	11.68
Muadzam Shah	11.54	18.59	20.21	17.97	17.33	16.43	16.82	18.74	17.54	19.13	14.15	12.23
Temerloh	13.30	19.31	20.92	19.60	19.43	17.25	17.23	11.38	17.92	18.62	15.25	14.03
Perak												
Ipoh	17.73	21.24	20.76	19.19	19.07	17.40	18.56	17.60	17.53	18.75	15.07	14.61
Lubok Merbau	19.08	22.24	22.71	21.18	21.03	18.63	18.42	11.62	18.38	18.65	16.45	15.09
Sitiawan	16.15	19.30	19.18	18.41	17.47	16.89	17.13	16.50	17.55	16.49	14.45	13.69
Perlis												
Chuping	16.86	21.62	20.89	21.75	19.75	17.74	16.04	11.09	15.74	16.89	14.34	15.36
Pulau Pinang												
Bayan Lepas	19.01	22.41	22.53	21.28	19.05	17.60	18.65	18.27	17.52	16.89	16.55	16.31
Sabah												
Kota Kinabalu	20.02	21.70	23.48	22.22	19.53	17.38	18.07	19.20	16.96	17.75	19.24	17.28
Kudat	18.47	22.15	24.60	25.60	23.78	18.50	19.52	19.37	19.86	19.34	17.57	14.74
Sandakan	16.88	19.82	21.40	24.32	23.12	16.40	18.06	19.50	19.82	19.93	16.54	14.34
Tawau	15.49	18.37	18.96	18.97	20.01	16.09	16.63	18.60	19.86	20.43	18.04	15.76
Keningau	17.62	22.84	22.83	24.48	23.18	20.07	21.81	22.90	21.70	22.73	11.34	Def.
Ranau	16.84	19.41	21.67	22.03	20.52	17.78	18.79	19.50	18.98	19.33	18.36	15.97
Sarawak												
Kuching	13.22	12.28	13.34	16.39	14.39	14.74	17.28	15.10	18.02	17.39	14.21	13.00
Miri	17.19	19.18	20.63	20.98	19.11	17.78	19.48	18.80	20.11	19.73	18.54	16.50
Sibu	16.07	16.68	16.21	18.23	16.87	16.45	18.94	16.84	20.03	17.25	16.95	16.32
Kapit	17.25	19.20	19.36	19.40	17.82	18.09	19.88	19.20	21.28	19.00	18.81	16.64
Sri Aman	n.a.	n.a.	15.35	n.a.	Def.	n.a.	n.a.	16.60	19.10	19.52	16.09	17.00
Selangor												
KLIA Sepang	16.17	19.86	19.77	18.61	18.43	15.91	18.48	18.30	18.81	17.65	14.85	15.16
Subang	15.26	18.97	19.26	17.28	16.57	15.90	17.50	16.00	17.18	17.28	14.70	14.19
Terengganu												
Kuala Terengganu	14.49	21.43	23.00	23.98	22.00	18.93	17.21	21.50	18.84	20.44	14.10	12.12
Wilayah Persekutuan Labuan												
Labuan	19.86	21.52	23.27	23.09	19.19	18.73	18.48	18.30	18.75	19.46	19.61	16.05

Sumber: Jabatan Meteorologi Malaysia
Source: Malaysia Meteorological Department

Jadual 1.6: Purata bulanan penyejatan, 2024

Table 1.6: Monthly mean evaporation, Malaysia, 2024

mm

Negeri/ Stesen State/ Station	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Johor												
Batu Pahat	2.7	3.9	n.a.	n.a.	3.7	Def.	3.9	3.2	3.9	Def.	3.1	2.9
Kluang	2.2	3.7	n.a.	n.a.	2.9	2.8	Def.	2.7	2.7	2.4	2.1	2.3
Mersing	1.8	4.4	n.a.	n.a.	3.3	3.2	3.4	3.4	3.2	3.5	3.3	2.9
Senai	Def.	4.0	n.a.	n.a.	3.4	Def.	3.7	4.1	4.2	3.8	2.5	3.4
Kedah												
Alor Setar	4.6	5.6	n.a.	n.a.	4.3	3.8	3.3	3.6	2.9	Def.	3.5	Def.
Langkawi	6.1	7.0	n.a.	n.a.	4.9	4.2	3.3	3.6	4.4	Def.	3.7	3.7
Kelantan												
Gong Kedak	n.a.	n.a.	n.a.	n.a.	4.7	n.a.	n.a.	4.3	4.4	4.4	3.0	2.4
Kota Bharu	4.4	5.3	n.a.	n.a.	6.2	5.3	4.2	5.4	4.9	5.0	4.8	3.3
Kuala Krai	Def.	3.8	n.a.	n.a.	4.4	4.1	3.7	3.8	3.1	3.1	2.6	1.7
Melaka												
Melaka	3.8	Def.	n.a.	n.a.	5.0	4.4	4.6	4.7	4.5	4.6	3.9	4.2
Negeri Sembilan												
Kuala Pilah	2.2	2.3	n.a.	n.a.	3.0	3.0	2.8	3.0	3.1	2.9	2.9	2.6
Pahang												
Batu Embun	3.1	4.1	n.a.	n.a.	4.0	3.6	3.4	3.5	3.2	Def.	3.1	2.3
Cameron Highlands	Def.	Def.	n.a.	n.a.	1.4	Def.	1.7	1.0	1.0	Def.	1.0	1.0
Kuantan	Def.	4.6	n.a.	n.a.	3.9	Def.	4.4	5.1	4.5	4.9	3.6	3.4
Muadzam Shah	Def.	4.1	n.a.	n.a.	3.6	3.8	3.8	3.1	3.9	3.4	3.6	3.1
Temerloh	2.7	3.5	n.a.	n.a.	4.0	Def.	3.3	3.2	3.3	3.4	2.9	2.3
Perak												
Ipoh	4.4	6.2	n.a.	n.a.	4.4	Def.	Def.	3.4	4.3	4.4	3.8	4.0
Lubok Merbau	4.1	5.2	n.a.	n.a.	4.4	4.1	4.3	4.2	3.9	3.8	3.2	3.3
Sitiawan	3.1	4.4	n.a.	n.a.	4.3	3.6	4.4	3.4	3.4	Def.	2.6	2.6
Perlis												
Chuping	4.6	Def.	n.a.	n.a.	4.2	4.4	3.6	3.8	3.4	Def.	3.9	4.2
Pulau Pinang												
Bayan Lepas	3.7	Def.	n.a.	n.a.	Def.	Def.	Def.	Def.	Def.	Def.	Def.	Def.
Butterworth	4.1	5.7	n.a.	n.a.	5.7	4.7	4.7	4.5	4.6	4.4	4.0	4.0
Sabah												
Kota Kinabalu	4.0	4.4	n.a.	n.a.	4.2	4.1	Def.	4.4	4.2	3.6	4.3	4.2
Kudat	4.4	5.1	n.a.	n.a.	6.0	4.0	4.6	4.4	4.6	3.6	4.1	3.2
Sandakan	5.3	Def.	n.a.	n.a.	6.9	4.4	4.5	4.7	4.8	4.4	4.2	3.4
Tawau	3.8	4.2	n.a.	n.a.	4.2	3.0	Def.	3.9	4.7	4.5	4.0	4.0
Sarawak												
Bintulu	Def.	4.2	n.a.	n.a.	3.9	Def.	Def.	3.7	4.3	4.0	4.1	3.9
Kuching	Def.	Def.	n.a.	n.a.	3.7	3.7	4.2	3.6	4.6	3.1	3.1	3.5
Miri	Def.	4.1	n.a.	n.a.	4.1	Def.	Def.	4.1	4.3	4.4	4.1	3.7
Sibu	Def.	3.6	n.a.	n.a.	3.6	Def.	3.6	3.9	4.4	3.6	3.9	3.4
Sri Aman	2.8	Def.	n.a.	n.a.	2.9	2.8	3.6	3.4	3.7	3.6	3.3	3.3

Jadual 1.6: Purata bulanan penyejatan, 2024 (samb.)

Table 1.6: Monthly mean evaporation, Malaysia, 2024 (cont'd)

												mm
Negeri/ Stesen State/ Station	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Selangor												
KLIA Sepang	3.8	Def.	n.a.	n.a.	4.1	Def.	Def.	3.5	3.9	4.0	3.1	3.1
Subang	3.9	5.3	n.a.	n.a.	4.8	4.7	Def.	4.1	4.3	4.7	4.2	3.6
Terengganu												
Kuala Terengganu	Def.	5.0	n.a.	n.a.	5.3	4.8	4.0	5.0	3.9	4.9	4.3	3.1
Wilayah Persekutuan Labuan												
Labuan	4.4	4.9	n.a.	n.a.	4.1	4.5	3.9	3.9	4.2	3.8	4.3	3.4

Sumber: Jabatan Meteorologi Malaysia
Source: Malaysia Meteorological Department

Jadual 1.7a: Bacaan maksimum harian Indeks Ultra Ungu (UV), Bayan Lepas, 2024

Table 1.7a: Daily maximum reading of the Ultra Violet (UV) Index, Bayan Lepas, 2024

Stesen/ Station	Bayan Lepas											
Bulan/ Monthly Hari/ Days	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
1	11+	11+	11+	11+	11+	10	11+	11+	10	10	11+	5
2	11+	11+	11+	11+	11+	9	11+	11+	11+	11+	11+	7
3	11+	11+	11+	11+	11+	10	9	11+	9	11+	11+	11
4	11+	11+	11+	11+	11+	11+	7	10	6	8	11+	7
5	11+	11+	11+	11+	11+	11+	9	10	11+	6	11+	10
6	11	11	11+	11+	11+	10	9	11+	9	10	11+	11+
7	9	11+	11+	11+	11+	11+	11+	11+	11+	10	11+	10
8	11+	11+	11	11+	11+	11+	11+	11+	11+	8	7	11+
9	11+	11	11+	11+	11+	11+	8	11+	11	11	8	10
10	11+	11+	11+	11+	11	10	10	10	9	8	11+	5
11	11+	11+	11+	11+	11+	11+	11+	8	11+	8	11+	10
12	11+	11+	11+	11+	11+	10	11+	11+	11+	11+	11+	10
13	11+	11+	11+	11+	11+	10	11+	11	11+	11+	11+	7
14	11+	11+	11+	11+	11+	11+	11+	11+	11+	3	11+	11+
15	11+	11+	11+	11+	10	11+	11+	9	11+	11+	11+	11+
16	11+	11+	11+	11+	11+	8	10	11+	11+	7	11+	10
17	11+	11+	11+	8	11+	9	11+	10	11+	7	11+	11
18	11+	8	11+	10	11+	11	11+	11+	11+	7	11+	11
19	11+	11+	11+	9	11	9	11+	11+	8	10	11	10
20	9	10	11+	11+	10	11+	8	11+	11+	8	11+	10
21	10	11+	11+	11+	8	8	10	11+	9	11+	11+	10
22	9	11+	11+	11+	11+	9	10	11+	11	10	7	10
23	8	11+	11+	11	10	11+	11+	11+	10	11+	8	10
24	11+	11+	11+	11+	11+	10	10	11+	11+	10	8	9
25	11+	11+	11+	10	10	9	10	11+	11+	11+	10	11+
26	11+	11+	11+	11+	11+	11+	11+	11+	6	11+	11+	10
27	11+	11+	11+	11+	10	11+	10	11+	11+	10	3	10
28	11+	11+	11+	11+	11+	11+	9	11+	11+	11+	6	9
29	11+	11+	11+	10	11+	11+	9	11+	11+	7	7	6
30	11+		11+	11+	11+	11+	9	11+	11+	10	11+	10
31	11+		11+		10		10	11+		11+		10

Nota: Def. Nilai defektif/
Notes: Defective value

Sumber: Jabatan Meteorologi Malaysia
Source: Malaysia Meteorological Department

n.a. Tiada pencerapan data disebabkan masalah instrumentasi
No data observation due to instrumentation problems

Status Indeks Ultra Ungu (UV)
Ultra Violet Index (UV) status

0 to 2	Rendah / Low
3 to 5	Sederhana / Moderate
6 to 7	Tinggi / High
8 to 10	Sangat Tinggi / Very High
11+	Melampau / Extreme

Jadual 1.7b: Bacaan maksimum harian Indeks Ultra Ungu (UV), Kota Bharu, 2024

Table 1.7b: Daily maximum reading of the Ultra Violet (UV) Index, Kota Bharu, 2024

Stesen/ Station	Kota Bharu											
Bulan/ Monthly Hari/ Days	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
1	11+	8	11+	11+	11+	10	9	11+	11+	11+	11+	5
2	11+	11+	11+	11+	11+	11+	10	11+	4	11+	8	11+
3	11+	11+	11+	11+	11+	11+	11+	11+	8	11+	11+	9
4	10	11+	11+	11+	11+	11+	7	11+	11+	11+	11	3
5	9	11+	11+	11+	11+	11+	10	11+	11+	7	11+	11+
6	10	11+	11+	11+	11+	11+	11+	11+	11+	11+	11+	7
7	9	0	11+	11+	11+	11+	11+	11+	11+	11+	7	10
8	11+	11+	11+	11+	11+	11+	11+	11+	11+	10	9	11+
9	11+	11+	9	11+	11+	11+	5	11+	11+	n.a.	8	11+
10	11+	11+	11+	11+	5	11+	7	11+	11+	11+	11+	4
11	11+	n.a.	11+	11+	11+	11+	10	11+	10	10	9	9
12	10	n.a.	11+	11+	11+	11+	6	11+	10	11+	11+	3
13	11+	n.a.	11+	11+	11+	9	11+	11+	11+	11+	11+	6
14	11+	11+	11+	11+	11+	9	11+	9	11+	11+	11+	6
15	11+	11+	11+	11+	11+	5	11+	11+	11+	11+	11+	6
16	11	11+	11+	11+	11+	5	11+	11+	11+	11+	11+	6
17	n.a.	11+	11+	11+	10	11+	7	11+	11+	11+	11+	11+
18	n.a.	11+	11+	11+	11	11+	11+	n.a.	11+	8	11+	10
19	11+	11+	11+	11+	11+	11+	8	11+	11+	11+	11+	10
20	11+	11+	11+	11+	11+	7	9	11+	11+	11+	11+	4
21	8	11+	11+	11+	11+	8	8	n.a.	7	11+	11+	3
22	5	11+	11+	11+	4	n.a.	11+	11+	7	11+	2	10
23	5	11+	11+	11+	11+	n.a.	10	8	11+	11+	11+	6
24	6	11+	11+	11	9	6	9	11+	11+	11+	1	8
25	3	11+	11+	11+	11+	8	9	11+	11+	11+	11+	6
26	11+	11+	11+	11+	11+	11+	11+	10	11+	10	8	10
27	11+	11+	11+	11+	11+	11+	11+	11+	n.a.	11+	4	10
28	11+	11+	n.a.	11+	11+	11+	8	9	n.a.	11+	2	11+
29	11+	11+	n.a.	11+	11+	11+	8	11+	n.a.	11+	3	5
30	11+		11+	11+	11	11+	11+	11+	11+	11+	2	11+
31	11+		11+		10		11+	6		10		11+

Nota: Def. Nilai defektif/
Notes: Defective value

Sumber: Jabatan Meteorologi Malaysia
Source: Malaysia Meteorological Department

n.a. Tiada pencerapan data disebabkan masalah instrumentasi
No data observation due to instrumentation problems

Status Indeks Ultra Ungu (UV)
Ultra Violet Index (UV) status

0 to 2	Rendah / Low
3 to 5	Sederhana / Moderate
6 to 7	Tinggi / High
8 to 10	Sangat Tinggi / Very High
11 +	Melampau / Extreme

Jadual 1.7c: Bacaan maksimum harian Indeks Ultra Ungu (UV), Kota Kinabalu, 2024

Table 1.7c: Daily maximum reading of the Ultra Violet (UV) Index, Kota Kinabalu, 2024

Stesen/ Station	Kota Kinabalu											
Bulan/ Monthly Hari/ Days	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
1	n.a.	n.a.	11+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	11+	11+
2	n.a.	n.a.	11+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	11+	11+
3	n.a.	10	11+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	11+	11+
4	n.a.	11+	11+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	11+	10
5	n.a.	11+	11+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	11+	8
6	n.a.	11+	11+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	11+	11+
7	n.a.	11+	11+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	11+	11+
8	n.a.	11+	11+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	11+	4
9	n.a.	11+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	11+	11+
10	n.a.	11+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	11+	11+
11	n.a.	11+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	11+	11+	11+
12	n.a.	11+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	11+	11+	11+
13	n.a.	11+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	11+	11+	11+
14	n.a.	11+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	11+	11+	7
15	n.a.	11+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	11+	11+	n.a.
16	n.a.	11+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	11+	11+	10
17	n.a.	11+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	6	11+	11+
18	n.a.	11+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	11+	11+	11+
19	n.a.	11+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	8	11+	11+
20	n.a.	11+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	11+	11+	10
21	n.a.	11+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	7	11+	10
22	n.a.	11+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	9	11+	4
23	n.a.	11+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	11+	11+	11+
24	n.a.	11+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	11+	10	10
25	n.a.	11+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	11+	11+	11+
26	n.a.	11+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	8	5	7
27	n.a.	11+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	11+	11+	11+
28	n.a.	11+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	11+	9	11
29	n.a.	11+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	11+	10	11+
30	n.a.		n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	11+	11+	11+
31	n.a.		n.a.		n.a.		n.a.	n.a.		11+		11+

Nota: Def. Nilai defektif/
Notes: Defective value

Sumber: Jabatan Meteorologi Malaysia
Source: Malaysia Meteorological Department

n.a. Tiada pencerapan data disebabkan masalah instrumentasi
No data observation due to instrumentation problems

Status Indeks Ultra Ungu (UV)
Ultra Violet Index (UV) status

0 to 2	Rendah / Low
3 to 5	Sederhana / Moderate
6 to 7	Tinggi / High
8 to 10	Sangat Tinggi / Very High
11 +	Melampau / Extreme

Jadual 1.7d: Bacaan maksimum harian Indeks Ultra Ungu (UV), Petaling Jaya, 2024

Table 1.7d: Daily maximum reading of the Ultra Violet (UV) Index, Petaling Jaya, 2024

Stesen/ Station	Petaling Jaya											
Bulan/ Monthly Hari/ Days	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
1	11+	11+	9	11+	11+	10	9	11+	n.a.	11+	n.a.	n.a.
2	8	11+	11+	11+	10	7	11+	11+	11+	11+	11+	8
3	8	11+	11+	11+	11+	11+	9	11+	9	6	11+	7
4	11+	11+	11+	10	8	9	9	6	11+	11+	11+	7
5	11+	11+	11+	11+	11+	10	9	11+	11+	11+	11+	11+
6	8	11+	11+	11+	11	7	11+	11+	11+	8	10	10
7	2	11+	11+	11+	10	10	11+	6	11+	11+	n.a.	11+
8	10	11+	10	6	10	11+	10	7	8	11	Def.	n.a.
9	11+	11+	11+	11+	10	11+	10	11+	9	11+	10	2
10	11+	11+	11+	11+	11+	9	11+	11+	7	11+	11+	4
11	11+	11+	11+	11+	11+	8	11+	3	11+	11+	n.a.	11+
12	11+	11+	7	11+	11+	10	7	11+	9	10	11+	11+
13	11+	11+	11+	11+	11+	11+	11+	11+	11+	4	n.a.	10
14	11+	11+	11+	11+	11+	5	11+	11+	11+	10	10	n.a.
15	11+	11+	11+	11+	11+	11+	10	11+	11+	11+	10	n.a.
16	11+	11+	11+	11+	11+	6	8	11+	11+	11+	10	9
17	11+	11+	11+	11+	11+	9	9	11+	11+	11+	11+	9
18	11+	11+	11+	7	11+	11+	11+	11+	11+	11+	9	8
19	11+	11+	11+	11+	9	8	6	11+	n.a.	5	7	9
20	6	11+	11+	11+	6	11+	10	9	n.a.	10	11	11+
21	11+	11+	11+	11+	11+	8	10	11+	n.a.	11+	11+	n.a.
22	11+	11+	11+	11+	11+	n.a.	7	8	n.a.	11+	8	n.a.
23	11+	11+	11+	11+	11+	n.a.	11+	8	11+	11+	10	4
24	11+	11+	11+	10	11+	11+	11+	11+	n.a.	11+	n.a.	n.a.
25	11+	11+	11+	11+	11+	11+	11+	11+	11+	n.a.	10	n.a.
26	11+	11+	11+	11+	8	10	8	8	11+	n.a.	7	8
27	11+	11+	11+	11+	10	11+	9	7	10	11+	7	6
28	11+	11+	11+	11+	11+	7	10	11+	11+	10	11+	11+
29	11+	11+	11+	11+	11+	11+	11+	n.a.	11+	11+	3	10
30	11+		11+	11+	11+	10	11+	11+	11+	8	n.a.	n.a.
31	11+		11+		11+		10	n.a.		n.a.		11+

Nota: Def. Nilai defektif/
Notes: Defective value

Sumber: Jabatan Meteorologi Malaysia
Source: Malaysia Meteorological Department

n.a. Tiada pencerapan data disebabkan masalah instrumentasi
No data observation due to instrumentation problems

Status Indeks Ultra Ungu (UV)
Ultra Violet Index (UV) status

0 to 2	Rendah / Low
3 to 5	Sederhana / Moderate
6 to 7	Tinggi / High
8 to 10	Sangat Tinggi / Very High
11 +	Melampau / Extreme

Jadual 1.7e: Bacaan maksimum harian Indeks Ultra Ungu (UV), Senai, 2024

Table 1.7e: Daily maximum reading of the Ultra Violet (UV) Index, Senai, 2024

Stesen/ Station	Senai											
Bulan/ Monthly Hari/ Days	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
1	8	11+	11+	11+	11+	5	n.a.	11+	10	10	11+	11+
2	11+	11+	11+	11+	10	9	n.a.	11+	11+	11+	7	11
3	11+	11+	9	11+	8	11+	n.a.	11+	9	11+	11+	9
4	5	11+	11+	11+	3	10	n.a.	10	6	8	4	11
5	11+	11+	11+	11+	11+	10	n.a.	10	11+	6	9	9
6	11+	11+	11+	11+	11+	7	n.a.	11+	9	10	9	11+
7	2	11+	11+	11+	11+	9	n.a.	11+	11+	10	11+	11+
8	11+	11+	10	11+	6	5	n.a.	11+	11+	8	11+	12
9	11+	11+	11+	11+	11+	10	n.a.	11+	11+	11+	10	9
10	11+	11+	11+	11+	5	8	n.a.	10	9	8	11+	6
11	11+	11+	11+	11+	11+	10	n.a.	8	11+	8	8	11+
12	6	9	11+	2	11+	9	n.a.	11+	11+	11+	11+	7
13	11+	11+	11+	11+	11+	9	n.a.	11	11+	11+	7	4
14	11+	11+	11+	7	11+	n.a.	7	11+	11+	3	11+	11+
15	11+	11+	11+	11+	8	n.a.	10	9	11+	11+	10	11+
16	11+	11+	11+	9	11+	n.a.	8	11+	11+	7	10	11+
17	11+	11+	11+	11+	11+	n.a.	9	10	11+	7	10	11+
18	7	11+	11+	11+	6	n.a.	11+	11+	11+	7	11	4
19	11+	11+	11+	11+	11+	n.a.	9	11+	8	10	6	7
20	5	Def.	11+	8	11+	n.a.	10	11+	11+	8	5	7
21	11+	11+	11+	11+	9	n.a.	9	11+	9	11+	11+	11+
22	11+	11+	11+	11+	7	n.a.	11+	11+	11+	10	11+	11+
23	11+	11+	11+	11+	11+	n.a.	10	11+	10	11+	11+	9
24	11+	11+	11+	9	9	n.a.	11+	11+	11+	10	11+	8
25	11+	11+	11+	11+	9	n.a.	9	11+	11+	11+	9	9
26	11+	11+	11+	11+	11	n.a.	10	11+	6	11+	9	8
27	11+	8	11+	11+	9	n.a.	10	11+	11+	10	11+	10
28	11+	11+	11+	10	n.a.	n.a.	10	11+	11+	11+	6	10
29	11+	11+	11+	11+	9	n.a.	10	11+	11+	7	2	12
30	11+		11+	10	11	n.a.	9	11+	11+	10	11+	11+
31	11+		11+		9		11+	11+		11+		11+

Nota: Def. Nilai defektif/
Notes: Defective value

Sumber: Jabatan Meteorologi Malaysia
Source: Malaysia Meteorological Department

n.a. Tiada penceraipan data disebabkan masalah instrumentasi
No data observation due to instrumentation problems

Status Indeks Ultra Ungu (UV)
Ultra Violet Index (UV) status

0 to 2	Rendah / Low
3 to 5	Sederhana / Moderate
6 to 7	Tinggi / High
8 to 10	Sangat Tinggi / Very High
11+	Melampau / Extreme

Jadual 1.7f: Bacaan maksimum harian Indeks Ultra Ungu (UV), Sibü, 2024

Table 1.7f: Daily maximum reading of the Ultra Violet (UV) Index, Sibü, 2024

Stesen/ Station	Sibü											
Bulan/ Monthly Hari/ Days	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
1	11+	11+	11+	11+	11+	10	11+	11+	11+	11+	11+	11+
2	10	11+	11+	11+	9	6	9	6	11+	11+	11+	11+
3	11+	10	11+	11+	11+	9	11+	n.a.	11	11+	11+	11+
4	11+	11+	11+	11+	11+	11+	11+	n.a.	11+	7	11+	11+
5	11+	11+	11+	11+	5	11+	11+	10	11+	10	11	11+
6	n.a.	11+	11+	11+	11+	11+	11+	11+	11+	n.a.	11+	11+
7	11+	11+	11+	11+	11+	11+	11+	11+	11+	10	10	11+
8	11+	11+	11+	11+	11+	7	11+	11+	11+	11+	11+	11+
9	11+	11+	11+	11+	11+	11+	11+	11+	10	11+	3	11+
10	11+	11+	11+	11+	11+	11+	11+	11+	11+	11+	11+	11+
11	11+	11+	11+	11+	4	11+	10	11+	11+	3	11+	11+
12	11+	11+	11+	11+	11+	11+	9	9	11+	11+	11+	10
13	11+	11+	11+	9	11+	11+	10	11+	11+	11+	11+	11+
14	11+	11+	11+	11+	11+	11+	11+	11+	n.a.	10	11+	10
15	11+	11+	11+	11+	11+	11+	9	9	11+	11+	11+	11+
16	11+	11+	11+	11+	11+	11+	11+	11+	11+	11+	11+	11+
17	11+	10	11+	11+	11+	11+	11+	11+	11+	6	11+	11+
18	10	10	11+	3	11+	8	9	11+	11+	11+	9	9
19	11+	9	11+	11+	11+	11+	11	9	11+	10	11+	8
20	8	11+	11+	11+	11+	10	11+	11+	11+	11+	11+	n.a.
21	11+	9	11+	11+	11+	8	11+	11+	n.a.	11+	11+	9
22	11+	11+	11+	11+	6	9	7	11+	n.a.	11+	5	n.a.
23	11+	11+	11+	11+	11+	7	11	11+	7	11+	11+	11+
24	11+	11+	11+	11+	8	11+	11	11+	11+	11+	11+	7
25	11+	11+	11+	11+	11+	11+	11+	11+	7	11+	6	n.a.
26	11+	11+	11+	n.a.	11+	11+	11	11+	11+	11+	11+	9
27	11+	11+	9	11+	11+	10	11+	10	9	11+	11+	9
28	11+	11+	11+	11+	10	11+	11	9	11+	11+	10	10
29	11+	11+	11+	9	5	11	10	8	8	7	9	11+
30	11+		11+	11+	11+	11+	8	11+	11+	11+	6	10
31	11+		11+		11+		11+	11+		11+		8

Nota: Def. Nilai defektif/
Notes: Defective value

Sumber: Jabatan Meteorologi Malaysia
Source: Malaysia Meteorological Department

n.a. Tiada pencerapan data disebabkan masalah instrumentasi
No data observation due to instrumentation problems

Status Indeks Ultra Ungu (UV)
Ultra Violet Index (UV) status

0 to 2	Rendah / Low
3 to 5	Sederhana / Moderate
6 to 7	Tinggi / High
8 to 10	Sangat Tinggi / Very High
11 +	Melampau / Extreme

Jadual 1.8: Lembangan sungai di Malaysia

Table 1.8: River basins in Malaysia

Kawasan Area	Jumlah lembangan sungai Total river basins	Jumlah lembangan sungai utama Total of major river basins (>80km ²)
Keseluruhan Overall	2,986	189
Semenanjung Malaysia Peninsular Malaysia	1,235	74
Sabah	1,468	75
Sarawak	283	40

Sumber: Jabatan Pengairan dan Saliran

Source: Department of Irrigation and Drainage

Jadual 1.9: Senarai lembangan sungai utama di Malaysia

Table 1.9: List of major river basins in Malaysia

Bil. No.	Nama Lembangan sungai River basins name	Luas (km ²) Area	Kategori Category	Negeri/ Negara State/ Country
1	Sg. Perlis	724.40	2	Perlis/ Kedah
2	Sg. Juru	80.76	1	Pulau Pinang
3	Sg. Perai	447.82	2	Pulau Pinang/ Kedah
4	Sg. Jawi	231.03	2	Pulau Pinang/ Kedah
5	Sg. Kerian	1,420.23	2	Pulau Pinang/ Kedah/ Perak
6	Sg. Kedah	2,971.82	1	Kedah
7	Sg. Merbok	439.41	1	Kedah
8	Sg. Yan Kechil	83.70	1	Kedah
9	Sg. Muda	4,150.40	2	Kedah/ Pulau Pinang
10	Sg. Perak	14,907.64	1	Perak
11	Sg. Kurau	740.13	1	Perak
12	Sg. Manjung	595.11	1	Perak
13	Sg. Larut/ Sg. Jaha	340.68	1	Perak
14	Sg. Beruas	310.92	1	Perak
15	Sg. Sangga Besar/ Sg. Sepetang	248.32	1	Perak
16	Sg. Temerloh	244.95	1	Perak
17	Sg. Jarum Mas	213.96	1	Perak
18	Sg. Tiram	91.33	1	Perak
19	Sg. Bernam	2,836.33	2	Perak/ Selangor
20	Sg. Selangor	1,936.87	1	Selangor
21	Sg. Tenggi	527.72	1	Selangor
22	Sg. Klang	1,297.38	2	Selangor/ W.P. Kuala Lumpur/ W.P. Putrajaya
23	Sg. Buloh	451.93	2	Selangor/ W.P. Kuala Lumpur
24	Sg. Langat	2,347.88	2	Selangor/ W.P. Kuala Lumpur/ W.P. Putrajaya/ Negeri Sembilan
25	Sg. Sepang	101.93	2	Selangor/ Negeri Sembilan
26	Sg. Lukut Besar	173.38	1	Negeri Sembilan
27	Sg. Linggi	1,297.67	2	Negeri Sembilan/ Melaka
28	Sg. Melaka	614.58	2	Negeri Sembilan/ Melaka

Jadual 1.9: Senarai lembangan sungai utama di Malaysia (samb.)

Table 1.9: List of major river basins in Malaysia (cont'd)

Bil. No.	Nama Lembangan sungai <i>River basins name</i>	Luas (km ²) <i>Area</i>	Kategori <i>Category</i>	Negeri/ Negara <i>State/ Country</i>
29	Sg. Duyong	131.03	1	Melaka
30	Sg. Baru	86.55	1	Melaka
31	Sg. Kesang	658.26	2	Melaka/ Johor/ Negeri Sembilan
32	Sg. Johor	2,285.64	1	Johor
33	Sg. Batu Pahat	2,048.79	1	Johor
34	Sg. Sedeli Besar	1,424.61	1	Johor
35	Sg. Benut	614.56	1	Johor
36	Sg. Lebam	365.46	1	Johor
37	Sg. Pontian Besar	362.05	1	Johor
38	Sg. Pulai	345.51	1	Johor
39	Sg. Skudai	293.33	1	Johor
40	Sg. Sarang Buaya	291.83	1	Johor
41	Sg. Sedeli Kechil	1,424.61	1	Johor
42	Sg. Mersing	273.46	1	Johor
43	Sg. Tebrau	256.97	1	Johor
44	Pt. Botak	150.21	1	Johor
45	Sg. Jemaluang	140.56	1	Johor
46	Sg. Sanglang	119.69	1	Johor
47	Sg. Santi	117.36	1	Johor
48	Sg. Ayer Baloi	81.66	1	Johor
49	Sg. Muar	6,137.80	2	Johor/ Pahang/ Melaka/ Negeri Sembilan
50	Sg. Endau	4,739.06	2	Johor/ Pahang
51	Sg. Pahang	28,682.25	2	Pahang/ Negeri Sembilan
52	Sg. Rompin	3,939.23	1	Pahang
53	Sg. Kuantan	1,684.35	1	Pahang
54	Sg. Bebar	1,117.40	1	Pahang
55	Sg. Mercung	628.26	1	Pahang
56	Sg. Pontian	319.72	1	Pahang
57	Sg. Penur	146.43	1	Pahang
58	Sg. Baluk (Sg. Air Putih)	97.82	1	Pahang
59	Sg. Cerating	88.54	1	Pahang
60	Sg. Terengganu	4,596.00	1	Terengganu
61	Sg. Kemaman	2,190.89	1	Terengganu
62	Sg. Dungun	1,828.11	1	Terengganu
63	Sg. Besut	953.22	1	Terengganu
64	Sg. Setiu	876.19	1	Terengganu
65	Sg. Paka	832.23	1	Terengganu
66	Sg. Marang	411.89	1	Terengganu
67	Sg. Keluang Besar	287.72	1	Terengganu
68	Sg. Mercang	259.45	1	Terengganu
69	Sg. Kertih	248.90	1	Terengganu
70	Sg. Ibai	124.27	1	Terengganu
71	Sg. Kelantan	12,981.19	1	Kelantan
72	Sg. Kemasin	347.66	1	Kelantan

Jadual 1.9: Senarai lembangan sungai utama di Malaysia (samb.)

Table 1.9: List of major river basins in Malaysia (cont'd)

Bil. No.	Nama Lembangan sungai <i>River basins name</i>	Luas (km ²) <i>Area</i>	Kategori <i>Category</i>	Negeri/ Negara <i>State/ Country</i>
73	Sg. Semerak	500.50	2	Kelantan/ Terengganu
74	Sg. Golok	1,011.13	3	Kelantan/ Thailand
75	Trusan Kinabatangan	16,072.95	1	Sabah
76	Sg. Padas	8,822.16	1	Sabah
77	Sg. Labuk	5,667.59	1	Sabah
78	Sg. Segama	4,402.69	1	Sabah
79	Sg. Sugut	3,066.72	1	Sabah
80	Sg. Kalabakan	1,337.44	1	Sabah
81	Sg. Kalumpang	1,112.01	1	Sabah
82	Sg. Tuaran	988.42	1	Sabah
83	Sg. Abai	861.88	1	Sabah
84	Sg. Kretam Besar	844.74	1	Sabah
85	Sg. Maruap	839.31	1	Sabah
86	Sg. Tuingkayu	789.78	1	Sabah
87	Sg. Papar	788.03	1	Sabah
88	Sg. Tandek	703.92	1	Sabah
89	Sg. Serudong	698.93	1	Sabah
90	Sg. Paitan	670.48	1	Sabah
91	Sg. Brantian	599.06	1	Sabah
92	Sg. Mengalong	587.85	1	Sabah
93	Sg. Silabukan	525.72	1	Sabah
94	Sg. Bongon	499.50	1	Sabah
95	Sg. Klias	479.79	1	Sabah
96	Sg. Bongaya	444.79	1	Sabah
97	Sg. Umas Umas	415.37	1	Sabah
98	Sg. Kaindahan	375.11	1	Sabah
99	Sg. Tiram	352.46	1	Sabah
100	Sg. Bukau	349.72	1	Sabah
101	Sg. Sinsilog	305.16	1	Sabah
102	Sg. Membakut	292.24	1	Sabah
103	Sg. Sengarong	278.13	1	Sabah
104	Sg. Burong	275.99	1	Sabah
105	Sg. Monyog	274.26	1	Sabah
106	Sg. Samawang	260.47	1	Sabah
107	Sg. Bandau	253.21	1	Sabah
108	Sg. Ulu Tungku	250.39	1	Sabah
109	Sg. Segaliud	248.94	1	Sabah
110	Sg. Kanibongan	227.78	1	Sabah
111	Sg. Keguraan	226.12	1	Sabah
112	Sg. Sahabat	225.12	1	Sabah
113	Sg. K.Klagan	208.46	1	Sabah
114	Sg. Bongawan	206.81	1	Sabah
115	Sg. Lakutan	204.39	1	Sabah
116	Sg. Langkon	202.94	1	Sabah
117	Sg. Mumiang	198.31	1	Sabah
118	Sg. Kimanis	190.43	1	Sabah

Jadual 1.9: Senarai lembangan sungai utama di Malaysia (samb.)

Table 1.9: List of major river basins in Malaysia (cont'd)

Bil. No.	Nama Lembangan sungai <i>River basins name</i>	Luas (km ²) <i>Area</i>	Kategori <i>Category</i>	Negeri/ Negara <i>State/ Country</i>
119	Sg. Gum-Gum Besar	163.74	1	Sabah
120	Sg. Binsuluk	160.88	1	Sabah
121	Sg. Telaga	155.78	1	Sabah
122	Sg. Mamahat	152.16	1	Sabah
123	Sg. Sapagaya	127.99	1	Sabah
124	Sg. Merotai	149.60	1	Sabah
125	Sg. Jeragan Bistari	148.09	1	Sabah
126	Sg. Tawau	142.19	1	Sabah
127	Sg. Pegagau	141.54	1	Sabah
128	Sg. Sepagaya	127.99	1	Sabah
129	Sg. Sulaman	127.60	1	Sabah
130	Sg. Kolapis	121.26	1	Sabah
131	Sg. Sabahan	120.95	1	Sabah
132	Sg. Tanjung Labian	116.80	1	Sabah
133	Sg. Apas	116.04	1	Sabah
134	Sg. Mengkabong	114.66	1	Sabah
135	Sg. Milau	114.38	1	Sabah
136	Sg. Tempasuk	110.15	1	Sabah
137	Sg. Sekong Besar	108.15	1	Sabah
138	Sg. Betotan	107.99	1	Sabah
139	Sg. Suanlamba Besar	100.86	1	Sabah
140	Sg. Inanam	95.90	1	Sabah
141	Sg. Simandalan	93.50	1	Sabah
142	Sg. Tatulit	90.64	1	Sabah
143	Sg. Bode Besar	89.86	1	Sabah
144	Sg. Pimpin	85.73	1	Sabah
145	Sg. Sibunga Besar	81.89	1	Sabah
146	Sg. Manalunan	81.37	1	Sabah
147	Sg. Tegupi	81.35	1	Sabah
148	Sg. Sibuku	799.45	3	Sabah/ Indonesia
149	Sg. Sembakung	5,467.77	3	Sabah/ Indonesia
150	Batang Balingian	2,227.47	1	Sarawak
151	Batang Baram	22,109.00	1	Sarawak
152	Batang Kayan	1,063.38	1	Sarawak
153	Batang Kemena	5,765.56	1	Sarawak
154	Batang Kerian	1,479.11	1	Sarawak
155	Batang Lawas	996.75	1	Sarawak
156	Batang Lupar	5,942.87	1	Sarawak
157	Batang Matu	355.56	1	Sarawak
158	Batang Mukah	2,030.60	1	Sarawak
159	Batang Oya	2,078.89	1	Sarawak
160	Batang Rajang	50,531.60	1	Sarawak
161	Batang Rambungan	132.41	1	Sarawak
162	Batang Sadong	3,526.61	1	Sarawak
163	Batang Salak	97.80	1	Sarawak
164	Batang Samarahan	903.09	1	Sarawak

Jadual 1.9: Senarai lembangan sungai utama di Malaysia (samb.)

Table 1.9: List of major river basins in Malaysia (cont'd)

Bil. No.	Nama Lembangan sungai <i>River basins name</i>	Luas (km ²) <i>Area</i>	Kategori <i>Category</i>	Negeri/ Negara <i>State/ Country</i>
165	Batang Saribas	1,905.66	1	Sarawak
166	Batang Suai	1,443.19	1	Sarawak
167	Batang Tatau	4,848.21	1	Sarawak
168	Batang Terusan	2,443.09	1	Sarawak
169	Sg. Bayan	91.17	1	Sarawak
170	Sg. Bedengan	111.60	1	Sarawak
171	Sg. Maludam	164.01	1	Sarawak
172	Sg. Samunsam	176.09	1	Sarawak
173	Sg. Santubong	114.51	1	Sarawak
174	Sg. Sematan	216.64	1	Sarawak
175	Sg. Siang-Siang	95.04	1	Sarawak
176	Sg. Sibu Laut	128.70	1	Sarawak
177	Sg. Sparan	93.26	3	Sarawak/ Indonesia
178	Sg. Likau	106.46	1	Sarawak
179	Sg. Limbang	3,682.40	1	Sarawak
180	Sg. Miri	680.91	1	Sarawak
181	Sg. Niah	1,316.20	1	Sarawak
182	Sg. Nyalau	267.27	1	Sarawak
183	Sg. Sarawak	1,726.84	1	Sarawak
184	Sg. Sarupai Sadupai	217.41	1	Sarawak
185	Sg. Sebuyau	520.53	1	Sarawak
186	Sg. Sibuti	892.66	1	Sarawak
187	Sg. Similajau	532.02	1	Sarawak
188	Sg. Telong	97.75	1	Sarawak
189	Sg. Pandaruan	222.38	3	Sarawak/ Brunei

Sumber: Jabatan Pengairan dan Saliran
Source: Department of Irrigation and Drainage

Nota: Kajian Persempadanan Lembangan Sungai Malaysia Fasa I oleh Bahagian Pengurusan Lembangan Sungai (2009)

Nota: Malaysia River Basin Boundary Study Phase I by the River Basin Management Division (2009)

Kategori 1: Lembangan sungai dalam 1 negeri

Category 1: River basin within the state

Kategori 2: Lembangan sungai melibatkan lebih dari 1 negeri

Category 2: River basin shared with more than 1 state

Kategori 3: Lembangan sungai melibatkan negara lain

Category 3: River basin shared with other country

Lembangan sungai utama: Lembangan yang berkeluasan melebihi 80 km²

Main river basins: An area of over 80 km²

Jadual 1.10: Lembangan sungai yang diawasi mengikut kategori, Malaysia, 2020-2024

Table 1.10: River basins monitored by category, Malaysia, 2020-2024

Kategori Category	2020		2021		2022		2023		2024	
	Bil. No.	%	Bil. No.	%	Bil. No.	%	Bil. No.	%	Bil. No.	%
Jumlah stesen pengawasan Total monitoring stations	1,353		1,351		1,353		1,353		1,353	
Jumlah lembangan sungai yang diawasi Total river basins monitored	144	100.0	144	100.0	144	100.0	144	100.0	144	100.0
Bersih Clean	104	72.2	108	75.0	108	75.0	98	68.0	99	68.8
Sederhana Tercemar Slightly Polluted	33	22.9	29	20.1	30	20.8	41	28.5	41	28.5
Tercemar Polluted	7	4.9	7	4.9	6	4.2	5	3.5	4	2.8

Sumber: Jabatan Alam Sekitar
Source: Department of Environment

Jadual 1.11: Panjang pantai mengikut negeri, Malaysia

Table 1.11: Coastal length by state, Malaysia

Negeri State	Panjang pantai (km) Coastal length	Peratus Per cent
Malaysia	8,840.0	100.0
Johor	813.6	9.2
Kedah	639.8	7.2
Kelantan	179.5	2.0
Melaka	120.5	1.4
Negeri Sembilan	65.0	0.7
Pahang	378.4	4.3
Perak	397.5	4.5
Perlis	26.4	0.3
Pulau Pinang	215.6	2.4
Sabah	3,752.9	42.5
Sarawak	1,234.1	14.0
Selangor	492.1	5.6
Terengganu	443.1	5.0
W.P. Labuan	81.5	0.9

Nota/ Notes: National Coastal Erosion Study for Malaysia (2015)

Sumber: Jabatan Pengairan dan Saliran
Source: Department of Irrigation and Drainage

Jadual 1.12: Empangan dan kolam takungan di Malaysia*Table 1.12: Dams and reservoirs in Malaysia*

Bil. No.	Nama empangan (Tahun siap dibina) <i>Name of dam (Year of completion)</i>	Lokasi (Negeri) <i>Location (State)</i>	Empangan <i>Dams</i>				Kolam takungan <i>Reservoirs</i>			
			Tinggi <i>Height</i>	Panjang puncak <i>Peak length</i>	Aras puncak <i>Top peak</i>	Kawasan tadahan <i>Catchment area</i>	Kapasiti <i>Capacity</i>	Luahan alur limpah maksimum <i>Maximum flood flow (cumecs)</i>	Luas permukaan <i>Surface area</i>	Aras biasa <i>Ordinary level</i>
			(m)	(m)	(m)	(km ²)	(Mm ³)		(km ²)	(m)
1	Timah Tasoh (1992)	Perlis	17.30	3,455.0	32.00	191.00	40.00	143.00	13.90	31.00
2	Padang Saga (1964)	Kedah	8.30	61.00	23.01	12.00	0.20	195.00	0.05	21.18
3	Bukit Kwong (1979)	Kelantan	7.62	1,524.0	18.29	11.00	14.30	42.50	4.04	16.76
4	Bukit Merah (1906)	Perak	9.10	579.09	11.28	480.00	74.98	424.80	41.00	8.69
5	Gopeng (1961)	Perak	8.54	85.34	70.71	10.60	-	129.82	n.a.	n.a.
6	Repas Lama (1925)	Pahang	13.40	210.00	143.29	10.00	-	60.00	n.a.	n.a.
7	Repas Baru (1963)	Pahang	20.00	40.00	128.96	11.00	0.40	85.00	0.05	126.22
8	Batu (1987)	Selangor	44.00	550.00	109.00	50.00	36.60	228.00	2.50	102.70
9	Pontian (1985)	Pahang	15.50	350.00	7.50	170.00	40.00	1,775.00	20.00	5.00
10	Anak Endau (1985)	Pahang	18.00	700.00	23.00	36.00	38.00	380.00	7.20	19.00
11	Labong (1949)	Johor	10.67	259.00	10.67	16.00	12.80	85.00	6.05	8.03
12	Bekok (1990)	Johor	20.30	3,460.00	23.00	326.00	32.00	5,341.00	12.00	13.30
13	Sembrong (1984)	Johor	11.00	1,770.0	15.00	130.00	18.00	640.00	8.50	8.50
14	Macap (1982)	Johor	11.50	550.00	19.81	77.00	30.60	306.00	9.09	15.85
15	Perting (2003)	Pahang	21.50	138.60	118.00	125.00	n.a.	28.30	1.05	n.a.
16	Beris (2004)	Kedah	40.00	155.00	88.00	116.00	122.40	260.00	16.10	84.00
17	Kenyir (1992)	Terengganu	155.00	800.00	155.00	2,500.00	13,500.0	7,000.00	369.00	145.00
18	Pergau(1996)	Kelantan	75.00	750.00	642.00	154.00	62.50	2,470.00	4.30	636.00
19	Sultan Abu Bakar, SAB (1963)	Pahang	40.00	152.00	1,071.0	159.00	6.70	963.00	0.50	1,070.0
20	Jor (1968)	Perak	45.00	209.00	497.00	275.00	308.00	1,104.00	0.30	493.00
21	Mahang (1968)	Perak	20.00	229.00	73.00	359.00	0.40	50.00	0.10	72.00
22	Temenggor (1977)	Perak	127.00	537.00	257.00	3,506.00	6,050.00	2,830.00	174.00	248.00
23	Bersia (1983)	Perak	35.50	252.00	143.30	3,550.00	57.70	5,280.00	5.70	141.50
24	Kenering (1984)	Perak	45.50	540.00	113.70	5,713.00	352.00	96.00	40.50	111.30
25	Chederoh (1930)	Perak	20.10	390.00	60.50	6,688.00	95.00	14,700.00	20.50	60.40
26	Durian Tunggal (1974)	Melaka	25.00	285.00	31.00	41.40	32.60	362.00	5.80	28.41
27	Asahan (1932)	Melaka	10.00	350.00	71.25	n.a.	0.70	-	0.17	70.95
28	Ayer Keroh (1980)	Melaka	7.00	120.00	22.20	1.69	0.30	-	0.09	20.73
29	Bunded Storage (1991)	Melaka	10.00	2,200.0	5.50	0.40	0.85	-	0.40	3.00

Jadual 1.12: Empangan dan kolam takungan di Malaysia (samb.)
Table 1.12: Dams and reservoirs in Malaysia (cont'd)

Bil. No.	Nama empangan (Tahun siap dibina) <i>Name of dam (Year of completion)</i>	Lokasi (Negeri) <i>Location (State)</i>	Empangan <i>Dams</i>				Kolam takungan <i>Reservoirs</i>			
			Tinggi <i>Height</i>	Panjang puncak <i>Peak length</i>	Aras puncak <i>Top peak</i>	Kawasan tadahan <i>Catchment area</i>	Kapasiti <i>Capacity</i>	Luahan alur limpah maksimum <i>Maximum flood flow (cumecs)</i>	Luas permukaan <i>Surface area</i>	Aras biasa <i>Ordinary level</i>
			(m)	(m)	(m)	(km ²)	(Mm ³)		(km ²)	(m)
30	Jus (2003)	Melaka	30.00	1,300.0	75.50	23.00	45.00	122.00	5.35	73.00
31	Batang Ai Hydroelectric Station (1985)	Sarawak	85.00	649.00	115.00	1,200.00	2,650.00	2,613.00	90.00	112.00
32	Tenom (1984)	Sabah	-	-	-	7,815.00	4.70	690.00	-	173.90
33	Klang Gates (1956)	Selangor	35.89	138.70	97.87	77.16	32.02	400.00	270.00	95.22
34	Langat (1976)	Selangor	61.00	366.00	223.71	41.44	38.42	550.00	2,500.00	220.95
35	Tasik Subang (1950)	Selangor	9.10	123.00	38.71	10.16	3.50	22.00	0.75	37.87
36	Semenyih (1982)	Selangor	49.00	800.00	115.00	56.70	61.40	20,000.00	3.50	111.00
37	Sungai Tinggi (1995)	Selangor	57.50	280.00	53.00	40.00	122.50	1,800.00	8.00	59.50
38	Sungai Selangor (2001)	Selangor	110.00	800.00	227.00	19.70	235.00	3,000.00	6.00	220.00
39	Kelinchi (1998)	Negeri Sembilan	70.00	270.00	220.00	38.30	50.00	576.00	1.90	215.00
40	Sungai Beringin (1990)	Negeri Sembilan	14.00	111.00	139.00	5.65	0.53	215.00	0.50	135.00
41	Sungai Terip (1987)	Negeri Sembilan	43.00	500.00	105.50	25.90	48.00	340.00	2.43	103.00
42	Hulu Muar (1992)	Negeri Sembilan	52.00	300.00	162.00	144.00	53.00	2,150.00	4.00	154.00
43	Gemenceh (1999)	Negeri Sembilan	39.00	270.00	116.50	36.90	30.80	230.00	2.80	111.00
44	Babagon (1997)	Sabah	73.00	375.00	133.10	30.00	16.60	2,136.00	0.75	122.00
45	Pinangsoo (1969)	Sabah	12.00	65.00	18.30	3.37	0.49	84.00	0.50	16.24
46	Sepagaya (1984)	Sabah	22.86	73.15	82.30	25.90	2.05	70.00	0.28	80.00
47	Timbangan (1984)	Sabah	15.24	156.00	57.60	21.70	0.81	162.00	0.22	55.50
48	Sg Cheneh (2002)	Pahang	48.00	400.00	80.50	152.00	260.00	1,223.00	16.20	74.00
49	Malut (1967)	Kedah	40.00	265.00	79.00	3.40	7.16	150.00	0.58	75.00
50	Bukit Kuda (1985)	W.P. Labuan	16.76	304.80	16.76	2.00	4.02	16.99	1.05	15.24
51	Kerupang (1985)	W.P. Labuan	11.60	91.40	16.76	0.49	0.22	14.16	0.05	12.20
52	Sg. Pagar (1985)	W.P. Labuan	18.29	103.60	20.42	0.77	0.34	24.07	0.09	15.24
53	Air Hitam (1962)	Pulau Pinang	51.80	243.90	236.54	5.75	2.61	113.00	0.20	234.70
54	Mengkuang (1985)	Pulau Pinang	46.34	1,005.0	45.34	3.90	23.60	430.00	1.74	43.30
55	Teluk Bahang (1999)	Pulau Pinang	53.50	685.00	53.50	9.84	19.24	760.00	0.95	48.00
56	Cherok To'Kun (1834)	Pulau Pinang	11.00	2.00	11.00	1.29	0.08	n.a.	0.10	10.00
57	Berapit (1896)	Pulau Pinang	12.50	2.00	12.50	1.15	0.15	n.a.	2.10	12.00
58	Bukit Panchor (1931)	Pulau Pinang	7.30	10.00	7.30	6.00	0.27	n.a.	0.50	5.80

Jadual 1.12: Empangan dan kolam takungan di Malaysia (samb.)

Table 1.12: Dams and reservoirs in Malaysia (cont'd)

Bil. No.	Nama empangan (Tahun siap dibina) Name of dam (Year of completion)	Lokasi (Negeri) Location (State)	Empangan Dams				Kolam takungan Reservoirs			
			Tinggi Height	Panjang puncak Peak length	Aras puncak Top peak	Kawasan tadahan Catchment area	Kapasiti Capacity	Luahan alir limbah maksimum Maximum flood flow (cumecs)	Luas permukaan Surface area	Aras biasa Ordinary level
				(m)	(m)	(km ²)	(Mm ³)		(km ²)	(m)
59	Congok (1960)	Johor	7.00	660.00	7.50	15.50	1.00	n.a.	4.52	5.30
60	Juaseh (1992)	Johor	30.00	86.50	86.50	29.47	30.00	382.00	2.71	82.50
61	Lebam (1979)	Johor	9.00	400.00	16.00	19.39	13.60	212.20	3.95	14.00
62	Gunung Ledang (1959)	Johor	10.50	79.40	n.a.	n.a.	0.30	n.a.	n.a.	n.a.
63	Layang (Lower) (1985)	Johor	8.00	700.00	9.00	25.00	15.00	9.00	3.40	3.0 - 5.0
64	Layang (Upper) (1985)	Johor	20.00	600.00	29.20	30.50	45.00	191.00	6.50	22.0- 25.0
65	Air Kuning (1991)	Perak	18.00	520.00	44.00	16.13	1.80	7.70	0.02	42.50
66	Sultan Azlan Shah/ Sg. Kinta (2006)	Perak	90.00	797.00	250.00	145.00	29.55	2,250.00	1.01	245.00
67	Sika (1963)	Sarawak	27.00	270.00	25.00	30.00	3.28	n.a.	0.35	20.00
68	Assyakirin (2004)	Sarawak	n.a.	1,000.0	35.00	27.90	n.a.	n.a.	n.a.	30.00
69	Air Kuning (1934)	Selangor	10.00	50.00	35.50	27.90	0.06	n.a.	0.04	31.00
70	Sg. Baru (1934)	Selangor	10.30	67.00	38.30	0.90	0.15	690.00	0.05	37.80
71	Muda (1966)	Kedah	37.00	250.00	105.15	984.00	154.00	2,000.00	15.50	83.69 - 103.29
72	Pedu (1966)	Kedah	61.00	220.00	100.13	171.00	1,080.00	280.00	52.00	75.60 - 98.6
73	Ahning (1985)	Kedah	74.00	27.00	115.50	120.00	275.00	840.00	11.00	89.57- 114

Sumber: Jabatan Pengairan dan Saliran
Source: Department of Irrigation and Drainage

Jadual 1.13: Keluasan tanah mengikut negeri dan daerah, Malaysia, 2025

Table 1.13: Land area by states and districts, Malaysia, 2025

Bil. No.	Negeri/ Daerah State/ District	Keluasan (km ²) Area (km ²)
MALAYSIA		331,579.95
Johor		19,322.44
1	Batu Pahat	1,985.95
2	Johor Bahru	1,041.18
3	Kluang	2,872.73
4	Kota Tinggi	3,509.05
5	Mersing	2,909.40
6	Muar	1,408.93
7	Pontian	992.77
8	Segamat	2,865.67
9	Kulai	755.22
10	Tangkak	981.53
Kedah		9,588.34
1	Baling	1,540.95
2	Bandar Baharu	269.89
3	Kota Setar	447.46
4	Kuala Muda	954.85
5	Kubang Pasu	962.84
6	Kulim	763.46
7	Langkawi	497.07
8	Padang Terap	1,356.31
9	Sik	1,657.03
10	Yan	265.79
11	Pendang	629.98
12	Pokok Sena	242.68
Kelantan		15,051.31
1	Bachok	278.98
2	Kota Bahru	400.96
3	Machang	526.32
4	Pasir Mas	569.55
5	Pasir Puteh	422.63
6	Tanah Merah	879.72
7	Tumpat	192.99
8	Gua Musang	6,365.58
9	Kuala Krai	2,274.67
10	Lojing	1,813.89
11	Jeli	1,326.03
Melaka		1,691.13
1	Alor Gajah	676.49
2	Jasin	698.97
3	Melaka Tengah	315.67

Jadual 1.13: Keluasan tanah mengikut negeri dan daerah, Malaysia, 2025 (samb.)

Table 1.13: Land area by states and districts, Malaysia, 2025 (cont'd)

Bil. No.	Negeri/ Daerah State/ District	Keluasan (km ²) Area (km ²)
Negeri Sembilan		6,667.91
1	Jelebu	1,356.35
2	Kuala Pilah	1,026.53
3	Port Dickson	590.40
4	Rembau	406.00
5	Seremban	953.59
6	Tampin	850.83
7	Jempol	1,484.22
Pahang		36,005.95
1	Bentong	1,769.55
2	Cameron Highlands	678.32
3	Jerantut	7,204.68
4	Kuantan	2,885.24
5	Lipis	2,082.22
6	Pekan	3,735.52
7	Raub	2,326.29
8	Temerloh	2,270.59
9	Rompin	2,068.51
10	Maran	1,977.42
11	Bera	2,213.99
12	Kecil Genting	66.67
13	Kecil Gebeng	183.38
14	Kecil Muadzam Shah	3,227.95
15	Kecil Jelai	3,315.62
Perak		21,226.10
1	Batang Padang	1,795.72
2	Muallim	935.48
3	Manjung	1,158.01
4	Kinta	1,297.62
5	Kerian	986.60
6	Kuala Kangsar	2,549.65
7	Larut dan Matang	1,432.08
8	Hilir Perak	792.58
9	Hulu Perak	6,581.91
10	Selama	762.08
11	Perak Tengah	1,289.50
12	Kampar	664.85
13	Bagan Datuk	980.04
Perlis		862.94
Pulau Pinang		1,157.67
1	Seberang Perai Tengah (Bukit Mertajam)	256.57
2	Seberang Perai Utara (Butterworth)	280.53
3	Seberang Perai Selatan (Nibong Tebal)	286.45
4	Timur Laut	138.39
5	Barat Daya	195.74

Jadual 1.13: Keluasan tanah mengikut negeri dan daerah, Malaysia, 2025 (samb.)

Table 1.13: Land area by states and districts, Malaysia, 2025 (cont'd)

Bil. No.	Negeri/ Daerah State/ District	Keluasan (km ²) Area (km ²)
Sabah		74,106.25
1	Tawau	2,249.54
2	Lahad Datu	7,480.29
3	Semporna	1,116.63
4	Sandakan	2,267.75
5	Kinabatangan	6,580.14
6	Labuk dan Sugut (Beluran)	2,008.18
7	Kota Kinabalu	368.35
8	Ranau	3,650.89
9	Kota Belud	1,388.47
10	Tuaran	1,148.01
11	Penampang	442.01
12	Papar	611.03
13	Kudat	1,299.13
14	Kota Marudu	1,767.97
15	Pitas	1,507.44
16	Beaufort	1,440.36
17	Kuala Penyu	445.85
18	Sipitang	2,738.63
19	Tenom	2,406.89
20	Pensiangan/ Nabawan	5,973.77
21	Keningau	810.82
22	Tambunan	1,341.59
23	Kunak	1,113.81
24	Tongod	10,004.10
25	Putatan	29.87
26	Telupid	2,210.25
27	Kalabakan	3,880.82
28	Membakut	955.61
29	Paitan	4,065.05
30	Sook	2,803.00
Sarawak		124,171.20
1	Kuching	1,498.40
2	Bau	775.00
3	Lundu	1,835.40
4	Samarahan	421.10
5	Asajaya	290.00
6	Simunjan	396.00
7	Gedong	612.00
8	Sebuyau	707.20
9	Serian	1,774.00
10	Tebedu	688.00
11	Siburan	356.70
12	Sri Aman	1,174.00
13	Pantu	760.60
14	Lingga	519.90
15	Lubok Antu	3,173.90

Jadual 1.13: Keluasan tanah mengikut negeri dan daerah, Malaysia, 2025 (samb.)

Table 1.13: Land area by states and districts, Malaysia, 2025 (cont'd)

Bil. No.	Negeri/ Daerah State/ District	Keluasan (km ²) Area (km ²)
Sarawak		
16	Betong	1,561.10
17	Saratok	867.20
18	Pusa	939.50
19	Kabong	832.00
20	Sarikei	958.00
21	Pakan	908.80
22	Maradong	740.10
23	Daro	1,118.50
24	Matu	1,600.80
25	Tanjung Manis	832.90
26	Julau	1,729.90
27	Sibu	2,192.20
28	Dalat	948.10
29	Mukah	2,468.80
30	Kanowit	2,241.80
31	Bintulu	1,973.40
32	Sebauh	5,126.10
33	Tatau	5,112.90
34	Kapit	3,973.40
35	Song	3,664.90
36	Belaga	16,125.80
37	Bukit Mabong	14,924.70
38	Miri	5,159.80
39	Marudi	3,078.60
40	Limbang	3,974.60
41	Lawas	3,680.20
42	Selangau	3,912.40
43	Telang Usan	9,816.10
44	Beluru	4,905.10
45	Subis	3,821.30
Selangor		8,337.20
1	Gombak	626.40
2	Klang	811.74
3	Kuala Langat	899.98
4	Kuala Selangor	1,264.88
5	Petaling	498.39
6	Sabak Bernam	1,078.11
7	Sepang	563.45
8	Hulu Langat	842.41
9	Hulu Selangor	1,751.86

Jadual 1.13: Keluasan tanah mengikut negeri dan daerah, Malaysia, 2025 (samb.)

Table 1.13: Land area by states and districts, Malaysia, 2025 (cont'd)

Bil. No.	Negeri/ Daerah State/ District	Keluasan (km ²) Area (km ²)
	Terengganu	12,983.63
1	Besut	1,227.03
2	Dungun	2,730.94
3	Kemaman	2,540.66
4	Kuala Terengganu	210.38
5	Kuala Nerus	400.08
6	Marang	664.66
7	Hulu Terengganu	3,871.55
8	Setiu	1,338.33
	W.P.Kuala Lumpur	242.87
	W.P.Putrajaya	49.21
	W.P.Labuan	115.80

Sumber: Jabatan Ukur dan Pemetaan Malaysia, Jabatan Tanah & Ukur Sabah dan Jabatan Tanah & Survei Sarawak
Source: Department of Survey and Mapping Malaysia, Sabah Lands & Surveys Department and Land & Survey Department Sarawak

Jadual 1.14: Bilangan spesis fauna mengikut kategori, Semenanjung Malaysia, 2020-2024

Table 1.14: Number of fauna species by category, Peninsular Malaysia, 2020-2024

Tahun Year	Endemik Endemic	Terancam Threatened	Pupus Extinct	Spesis asing invasif Invasive alien species
2020	84	198	2	22
2021	84	198	2	22
2022	84	198	2	22
2023	84	198	2	22
2024	84	198	2	22

Sumber: Jabatan Perlindungan Hidupan Liar dan Taman Negara
Source: Department of Wildlife and National Parks

Jadual 1.15: Spesis fauna endemik mengikut kelas, Semenanjung Malaysia, 2020-2024

Table 1.15: Endemic fauna species by class, Peninsular Malaysia, 2020-2024

Tahun Year	Mamalia Mammals		Burung Birds		Reptilia Reptiles		Amfibia Amphibian	
	Bil.	%	Bil.	%	Bil.	%	Bil.	%
2020	9	31.5	4	19.7	40	1.3	31	4.3
2021	9	31.5	4	19.7	40	1.3	31	4.3
2022	9	31.5	4	19.7	40	1.3	31	4.3
2023	9	31.5	4	19.7	40	1.3	31	4.3
2024	9	31.5	4	19.7	40	1.3	31	4.3

Sumber: Jabatan Perlindungan Hidupan Liar dan Taman Negara
Source: Department of Wildlife and National Parks

Jadual 1.16a: Kawasan perlindungan yang digazet, Semenanjung Malaysia
Table 1.16a: Gazetted protected area, Peninsular Malaysia

Negeri State	Kawasan perlindungan Protected area	Keluasan (Hektar) Area (Hectares)	Bilangan spesis Number of species			
			Fauna			
			Mamalia Mammals	Burung Birds	Reptilia Reptiles	Amfibia Amphibians
Johor	Taman Negara (Johor) Endau Rompin	48,905.00	65	257	26	46
	Taman Negara Gunung Ledang	8,611.90	38	169	9	9
	Taman Negara Johor Pulau Kukup	647.50	7	81	7	1
	Taman Negara Johor Tanjung Piai	325.00	7	43	7	1
	Tapak Ramsar Sungai Pulai	9,126.00	7	81	7	1
	Endau-Kluang Wildlife Reserve	101,107.15 ^f	-	-	-	-
	Endau-Kota Tinggi Wildlife Reserve	43,520.10 ^f	-	-	-	-
	Four Islands Wildlife Sanctuary	12.18 ^f	-	-	-	-
	Segamat Wildlife Reserve	12,979.54 ^f	-	-	-	-
Kedah	Rizab Tuntung Sungai Bukit Pinang	1.00	-	-	-	-
	Rizab Tuntung Sidam Kanan	1.00	-	-	-	-
Kelantan	Taman Negara Kelantan	91,440.00 ^f	-	-	-	-
	Taman Negeri Gunung Stong	21,950.00	106	57	30	18
Melaka	Rizab Hidupan Liar Sembilan Pulau	25.14 ^f	-	-	-	-
	Rizab Hidupan Liar Tanjung Tuan	74.08 ^f	-	-	-	-
Negeri Sembilan	Port Dickson Island Wildlife Sanctuary	212.80 ^f	-	-	-	-
	Pusat Santuari Buaya Tembaga	3.41	-	-	-	-
Pahang	Rizab Hidupan Liar Bukit Fraser Pahang	2,000.00	-	-	-	-
	Kuala Pahang Bird Sanctuary	1,482.70	-	-	-	-
	Rizab Hidupan Liar Tengku Hassanah	60,551.61 ^f	-	-	-	-
	Pahang Tua Wildlife Sanctuary	1,335.00	-	-	-	-
	Rizab Hidupan Liar Pulau Tioman	8,018.85 ^f	-	-	-	-
	Taman Negara Pahang	248,121.00	-	-	-	-
	Tapak Ramsar Tasek Bera	31,255.00	-	-	-	-
Perak	Rizab Tuntung Bota Kanan	6.30 ^f	-	-	-	-
	Rizab Hidupan Liar Chior	401.00 ^f	-	-	-	-
	Rizab Hidupan Liar Sungkai	3,305.00 ^f	-	-	-	-
	Rizab Hidupan Liar Batu Gajah (Perak)	4.00 ^f	-	-	-	-
	Taman Negeri Royal Belum	117,500.00	144	247	23	24
	Pulau Sembilan State Park	182.00	-	-	-	-
Perlis	Rizab Hidupan Liar Wang Pinang	67.94 ^f	-	-	-	-
	Taman Negeri Perlis	4,379.80	99	132	38	-
Pulau Pinang	Taman Negara Pulau Pinang ²	2,508.00 ^f	-	-	-	-
	Taman Botani Pulau Pinang	241.20	-	-	-	-
Selangor	Paya Indah Wetlands	450.77 ^f	-	-	-	-
	Rezab Hidupan Liar Bukit Fraser Selangor	2,974.00 ^f	-	-	-	-
	Rezab Hidupan Liar Bukit Kutu	1942.50 ^f	-	-	-	-
	Rezab Hidupan Liar Bukit Sungai Puteh Selangor	36.00	-	-	-	-
	Rezab Hidupan Liar Kuala Selangor	44.00	-	-	-	-
	Rezab Hidupan Liar Sg. Dusun	4,330.00	-	-	-	-
	Rezab Hidupan Liar Taman Templers	966.00	-	-	-	-
	Klang Gates Wildlife Reserve	114.48 ^f	-	-	-	-
	Taman Warisan Selangor	93,001.80	114	355	-	202
	Templer's Park Forest Sanctuary for Wild Life	853.30	-	-	-	-
	Taman Alam Kuala Selangor Nature Park	323.80	20	169	15	16

[illegible]

Jadual 1.16a: Kawasan perlindungan yang digazet, Semenanjung Malaysia (samb.)

Table 1.16a: *Gazetted protected area, Peninsular Malaysia (cont'd)*

Negeri State	Kawasan perlindungan Protected area	Keluasan (Hektar)	Bilangan spesies Number of species			
		Area (Hectares)	Fauna			
			Mamalia Mammals	Burung Birds	Reptilia Reptiles	Amfibia Amphibians
Terengganu	Rizab Tuntung Bukit Paloh	1.00	-	-	-	-
	Taman Negara Terengganu	103,082.00	-	-	-	-
	Pusat Santuari Penyu Ma'Daerah	23.70	-	-	1	-
	Pusat Santuari Penyu Rantau Abang	1,400.00	-	-	-	-
W.P. Kuala Lumpur	Rezab Hidupan Liar Bukit Nanas	9.80 ^f	-	-	-	-
	Rezab Hidupan Liar Bukit Sungai Puteh Kuala Lumpur	14.50 ^f	-	-	-	-
	Rezab Hidupan Liar Kelab Golf Di Raja Selangor	403.00	-	-	-	-

Nota: ¹Lain-lain invertebrat seperti Serangga, Arthropods dan Echinoderms

Notes: *Other invertebrates like Insects, Arthropods and Echinoderms*

²Termasuk Taman Negara Pantai Aceh dan Pusat Konservasi Penyu Pantai Keranchut

Includes Taman Negara Pantai Aceh and Pusat Konservasi Penyu Pantai Keranchut

Meliputi maklumat daripada Jabatan Perlindungan Hidupan Liar dan Taman Negara, Jabatan Perhutanan Semenanjung Malaysia, Jabatan Perikanan, Perbadanan Negeri Perak, Perbadanan Taman Negeri Johor, Kerajaan Negeri Pulau Pinang dan Majlis Daerah Kuala Selangor

Includes information from Department of Wildlife and National Parks, Department of Forestry Peninsular Malaysia, Department of Fisheries, Perak State Parks Corporation, Johor National Parks Corporation, Penang State Government and Kuala Selangor District Council.

- : Tidak diliputi oleh agensi semasa tahun rujukan Banci Kawasan Perlindungan dan Kepelbagaian Biologi 2014

Not covered by the agency during Biodiversity and Protected Areas Census 2014 reference year

^f Data telah disemak semula yang melibatkan nama kawasan perlindungan di bawah seliaan Jabatan PERHILITAN dan keluasan kawasan sahaja.

The data have been revised, involving only the names of protected areas under the supervision of the Department of Wildlife and National Parks (PERHILITAN) and the size of the areas.

Bilangan spesies <i>Number of species</i>						
Fauna				Flora		
Moluska <i>Molluscs</i>	Ikan <i>Fish</i>	Cnidarians	Spesies invertebrat yang lain ¹ <i>Other invertebrate species</i>	Rumpai laut <i>Seaweeds</i>	Rumput laut <i>Sea grass</i>	Tumbuhan <i>Plants</i>
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

Jadual 1.16b: Kawasan perlindungan yang digazet, Sabah

Table 1.16b: *Gazetted protected area, Sabah*

Negeri State	Kawasan perlindungan Protected area	Keluasan (Hektar) Area (Hectares)	Bilangan spesies Number of species			
			Fauna			
			Mamalia Mammals	Burung Birds	Reptilia Reptiles	Amfibia Amphibians
a. Taman Parks						
1	Taman Marin Tun Sakaran	35,000.0	4	-	18	1
2	Taman Banjaran Crocker	139,919.0	63	254	110	128
3	Taman Bukit Tawau	27,972.0	78	133	155	68
4	Taman Kinabalu	75,370.0	146	355	178	137
5	Taman Pulau Penyu	1,740.0	5	20	7	-
6	Taman Pulau Tiga	15,864.0	10	44	26	3
7	Taman Pulau Sipadan	16,860.0	-	50	7	-
8	Taman Tunku Abdul Rahman	4,929.0	10	32	37	6
b. Rizab Hidupan Liar Wildlife Reserve						
1	Rizab Hidupan Liar Kulamba Kinabatangan	20,854.0	8	-	-	-
2	Hutan Simpan Tabin (Rezab Hidupan Liar Tabin)	120,521.0	71	252	-	-
3	Sugud Islands Marine Conservation Area (SIMCA)	46,317.0	6	9	3	-
4	Hutan Simpan Gua Gomantong	3,297.0	2	2	-	-
c. Santuari Hidupan Liar Wildlife Sanctuaries						
1	Santuari Hidupan Liar Hilir Kinabatangan	26,103.3	11	5	-	-
2	Santuari Burung Mantanani	61.0	1	4	2	-
3	Santuari Burung Kota Belud	495.0	-	5	-	-
4	Santuari Burung Bandaraya Kota Kinabalu	24.0	-	25	97	6
5	Santuari Hidupan Liar Padang Teratak Beaufort	2,270.0	22	112	4	15
6	Hutan Simpan Madai Baturong (Kelas VI)	111,971.0	71	252	-	-
7	Pusat Pemulihan Orang Utan Sepilok	4,294.0	299	321	35	22

Nota: ¹Lain-lain invertebrat seperti Serangga, Arthropods dan Echinoderms

Notes: Other invertebrates like Insects, Arthropods and Echinoderms

Meliputi maklumat daripada Jabatan Hidupan Liar Sabah, Jabatan Perhutanan Sabah, Sabah Wetland Conservation Society dan Taman-Taman Sabah

Includes data from Sabah Wildlife Department, Sabah Forestry Department, Sabah Wetland Conservation Society and Sabah Parks

- : Tidak diliputi oleh agensi semasa tahun rujukan Banci Kawasan Perlindungan dan Kepelbagaian Biologi 2014
Not covered by the agency during Biodiversity and Protected Areas Census 2014 reference year

Bilangan spesies <i>Number of species</i>							
Fauna				Flora			
Moluska <i>Molluscs</i>	Ikan <i>Fish</i>	Cnidarians	Spesies invertebrat yang lain ¹ <i>Other invertebrate species</i>	Rumpai laut <i>Seaweeds</i>	Rumput laut <i>Sea grass</i>	Tumbuhan <i>Plants</i>	
-	-	-	299	-	-	220	
28	60	-	623	-	-	1,334	
21	38	-	506	-	-	708	
69	71	-	1,798	-	-	4,104	
92	125	-	199	22	3	29	
11	2	-	231	-	-	125	
3	-	-	191	-	-	20	
1	2	-	179	-	-	145	
-	-	-	-	-	-	-	
-	-	-	26	-	-	779	
103	510	400	99	7	4	3	
-	-	-	-	-	-	-	
-	-	-	-	-	-	-	
-	-	-	-	-	-	-	
13	-	-	44	-	-	13	
-	-	-	-	-	-	9	
-	-	-	26	-	-	779	
-	202	-	1,001	-	-	10,410	

Jadual 1.16c: Kawasan perlindungan sepenuhnya, Sarawak

Table 1.16c: Totally protected area, Sarawak

Negeri State	Kawasan perlindungan Protected area	Keluasan (Hektar) Area (Hectares)	Bilangan spesis Number of species			
			Fauna			
			Mamalia Mammals	Burung Birds	Reptilia Reptiles	Amfibia Amphibians
a. Taman Negara National Parks						
1	Taman Negara Bako	2,727.00	49	257	-	48
2	Taman Negara Batang Ai	24,040.00	37	121	-	9
3	Taman Negara Bukit Lambir	6,949.00	65	247	85	-
4	Taman Negara Bukit Tiban	8,000.00	-	-	-	-
5	Taman Negara Gunung Buda - Ext I	11,307.00	-	300	60	-
6	Taman Negara Gunung Gading	4,196.00	30	55	6	9
7	Taman Negara Gunung Mulu - Ext. I dan Ext. II	85,671.00	96	307	-	240
8	Taman Negara Kubah	2,230.00	23	126	7	66
9	Taman Negara Kuching Wetlands	6,610.00	-	-	-	-
10	Taman Negara Loagan Bunut	10,736.00	60	187	34	23
11	Taman Negara Maludam	43,147.00	6	24	2	-
12	Taman Negara Terumbu Karang Miri-Sibuti	186,930.00	-	-	-	-
13	Taman Negara Niah	3,138.00	7	59	-	104
14	Taman Negara Pulong Tau - Ext. 1	69,817.00	-	-	-	-
15	Taman Negara Rajang Mangrove	9,373.00	-	-	-	-
16	Taman Negara Santubong	1,410.00	-	-	-	-
17	Taman Negara Similajau - Ext I	8,996.00	60	258	-	-
18	Taman Negara Sedilu	6,311.00	-	-	-	-
19	Taman Negara Talang Satang	19,414.02	-	6	9	-
20	Taman Negara Tanjung Datu	1,349.00	35	46	-	11
21	Taman Negara Banjaran Bungo	8,096.00	-	-	-	-
22	Taman Negara Ulu Sebuyau	18,287.00	-	-	-	-
23	Taman Negara Usun Apau	49,355.00	-	-	-	-
24	Taman Negara Batang Lassa	22,000.00	-	-	-	-
25	Taman Negara Bruit-Patok	14,526.00	-	-	-	-
26	Taman Negara Pulau Sampadi	1,240.0	-	-	-	-
27	Taman Negara Pelagus	2,041.0	-	-	-	-
28	Taman Negara Gunung Lesong	595.0	-	-	-	-
b. Santuari Hidupan Liar Wildlife Sanctuaries						
1	Santuari Hidupan Liar Samunsam - Ext I	22798	-	-	-	-
2	Santuari Hidupan Liar Pulau Tukong Ara-Banun	1.4	-	-	-	-
3	Santuari Hidupan Liar Lanjak Entimau - Ext I	168758	27	31	5	19
4	Santuari Hidupan Liar Sibuti	678	9	122	-	3

Bilangan spesies Number of species							
Fauna				Flora			
Moluska Molluscs	Ikan Fish	Cnidarians	Spesies invertebrat yang lain¹ Other invertebrate species	Rumpai laut Seaweeds	Rumput laut Sea grass	Tumbuhan Plants	
40	-	-	213	-	-	600	
-	17	-	-	-	-	1,200	
-	-	-	33	-	-	823	
-	-	-	-	-	-	-	
-	-	-	-	-	-	2,500	
-	-	-	14	-	-	58	
20,000	-	-	8,100	-	-	4,300	
94	-	-	88	-	-	298	
-	-	-	-	-	-	-	
-	70	-	231	-	-	637	
-	-	-	-	-	-	-	
-	-	-	-	-	-	-	
-	-	-	97	-	-	334	
-	-	-	-	-	-	-	
-	-	-	-	-	-	-	
-	-	-	-	-	-	-	
-	42	-	-	-	-	131	
-	-	-	-	-	-	-	
-	-	-	-	-	1	-	
-	-	-	40	-	-	-	
-	-	-	-	-	-	-	
-	-	-	-	-	-	-	
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Jadual 1.16c: Kawasan perlindungan sepenuhnya, Sarawak (samb.)

Table 1.16c: Totally protected area, Sarawak (cont'd)

Negeri State	Kawasan perlindungan Protected area	Keluasan (Hektar) Area (Hectares)	Bilangan spesis Number of species				
			Fauna				
			Mamalia Mammals	Burung Birds	Reptilia Reptiles	Amfibia Amphibians	
	c. Rizab Semulajadi Nature Reserve						
1	Rezab Semulajadi Fairy Cave	56.0	2	1	1	1	
2	Sama Jaya Nature Reserve	37.9	9	20	4	11	
3	Semangoh Nature Reserves	653.0	38	45	-	-	
4	Bukit Hitam Nature Reserve	147.0	-	-	-	-	
5	Bukit Sembiling Nature Reserve	101.0	-	-	-	-	
6	Rezab Semulajadi Bukit Lima	219.2	2	-	-	-	
7	Pulau Tun Ahmad Zaidi Nature Reserve	547.0	-	-	-	-	

Nota: ¹Lain-lain invertebrat seperti Serangga, Arthropods dan Echinoderms

Notes: Other invertebrates like Insects, Arthropods and Echinoderms

Meliputi maklumat daripada Sarawak Forestry Corporation

Includes information from Sarawak Forestry Corporation

- : Tidak diliputi oleh agensi semasa tahun rujukan Banci Kawasan Perlindungan dan Kepelbagaian Biologi 2014

Not covered by the agency during Biodiversity and Protected Areas Census 2014 reference year

Bilangan spesies <i>Number of species</i>							
Fauna				Flora			
Moluska <i>Molluscs</i>	Ikan <i>Fish</i>	Cnidarians	Spesies invertebrat yang lain ¹ <i>Other invertebrate species</i>	Rumpai laut <i>Seaweeds</i>	Rumput laut <i>Sea grass</i>	Tumbuhan <i>Plants</i>	
1	1	-	3	-	-	4	
-	4	-	30	-	-	188	
-	-	-	-	-	-	1,175	
-	-	-	-	-	-	-	
-	-	-	-	-	-	-	
-	-	-	-	-	-	1	
-	-	-	-	-	-	-	

Jadual 1.16d: Kawasan perlindungan yang digazet di bawah taman laut, Malaysia

Table 1.16d: *Gazetted protected area of marine park, Malaysia*

Negeri State	Kawasan perlindungan Protected area	Keluasan (Hektar) Area (Hectares)	Bilangan spesies Number of species			
			Fauna		Flora	
			Cnidarians ¹	Ikan Fish	Rumpai laut Seaweeds	Rumput laut Sea grass
Johor	Pulau Aur	9,745	51	-	-	-
	Pulau Besar	8,414	43	-	-	7
	Pulau Gaol	4,570	-	-	-	-
	Pulau Harimau	4,900	-	-	-	-
	Pulau Hujung	5,235	-	-	-	-
	Pulau Mensirip	4,660	-	-	-	-
	Pulau Mentinggi	4,399	-	-	-	-
	Pulau Pemanggil	8,790	47	121	-	-
	Pulau Rawa	5,080	-	-	-	-
	Pulau Sibul	4,260	45	-	-	4
	Pulau Sibul Hujung	1,183	-	-	-	-
	Pulau Tengah	5,149	-	-	-	4
	Pulau Tinggi	10,180	155	218	-	6
Kedah	Pulau Kacha	4,290	15	7	-	-
	Pulau Lembu	4,613	-	9	-	-
	Pulau Payar	5,491	32	48	-	-
	Pulau Segantang	4,419	12	20	-	-
Pahang	Pulau Chebeh	4,492	13	37	-	-
	Pulau Gut (Pulau Jahat)	4,520	152	152	-	-
	Pulau Labas	4,478	-	-	-	-
	Pulau Sembilang	6,060	-	-	-	-
	Pulau Sepoi	4,457	-	-	-	-
	Pulau Seri Buat	7,720	68	111	-	-
	Pulau Tioman	25,115	183	120	-	-
	Pulau Tokong Bahara	4,513	70	131	-	-
Terengganu	Pulau Tulai	6,306	39	129	-	-
	Pulau Perhentian Besar	9,121	-	58	-	3
	Pulau Perhentian Kecil	8,107	-	58	-	2
	Pulau Ekor Tebu	4,060	-	-	-	-
	Pulau Kapas	2,133	-	112	-	-
	Pulau Lang Tengah	6,150	86	73	-	-
	Pulau Lima	4,390	96	131	-	-
	Pulau Nyireh	10,170	-	121	-	-
	Pulau Tenggol					
	Pulau Pinang	4,890	-	-	-	-
	Pulau Redang	12,750	149	138	-	3
	Pulau Susu Dara	1,428	-	-	-	-
	Pulau Yu Besar	3,280	-	66	-	-

Jadual 1.16d: Kawasan perlindungan yang digazet di bawah taman laut, Malaysia (samb.)

Table 1.16d: *Gazetted protected area of marine park, Malaysia (cont'd)*

Negeri State	Kawasan perlindungan Protected area	Keluasan (Hektar) Area (Hectares)	Bilangan spesies Number of species			
			Fauna		Flora	
			Cnidarians ¹	Ikan Fish	Rumpai laut Seaweeds	Rumput laut Sea grass
W.P. Labuan	Pulau Kuraman	6,695	54	-	15	-
	Pulau Rusukan Besar	4,470	54	-	14	-
	Pulau Rusukan Kecil	4,650	53	-	14	-

Nota: ¹Termasuk batu karang, anemone, obor-obor, sea fans, sea whips dan zooplankton

Note: Includes corals, anemones, jellyfish, sea fans, sea whips and zooplankton

Meliputi maklumat daripada Jabatan Taman Laut

Includes information from Department of Marine Park

- : Tidak diliputi oleh agensi semasa tahun rujukan Banci Kawasan Perlindungan dan Kepelbagaian Biologi 2014

Not covered by the agency during Biodiversity and Protected Areas Census 2014 reference year

Jadual 1.17: Kawasan berhutan dan tidak berhutan, Malaysia, 2019-2022

Table 1.17: Forested and non-forested areas, Malaysia, 2019-2022

Negeri State	Tahun Year	Berhutan <i>Forested</i>		Tidak Berhutan <i>Non-Forested</i>	
		Hektar <i>Hectares</i>	(%)	Hektar <i>Hectares</i>	(%)
Malaysia	2019	18,095,095	54.73	14,970,386	45.27
	2020	18,045,319	54.58	15,020,162	45.42
	2021	17,979,103	54.37	15,086,383	45.63
	2022	17,967,520	54.31	15,117,988	45.69
Semenanjung Malaysia <i>Peninsular Malaysia</i>	2019	5,693,886	42.95	7,564,493	57.05
	2020	5,694,503	42.95	7,563,876	57.05
	2021	5,727,174	43.20	7,531,210	56.80
	2022	5,722,546	43.16	7,535,838	56.84
Johor	2019	442,884	23.11	1,473,700	76.89
	2020	442,884	23.11	1,473,700	76.89
	2021	443,129	23.12	1,473,457	76.88
	2022	442,771	23.10	1,473,815	76.90
Kedah	2019	344,945	36.27	606,070	63.73
	2020	344,945	36.27	606,070	63.73
	2021	344,850	36.26	606,166	63.74
	2022	344,630	36.24	606,386	63.76
Kelantan	2019	767,203	51.04	736,040	48.96
	2020	767,203	51.04	736,040	48.96
	2021	767,203	51.04	736,040	48.96
	2022	767,330	51.04	735,913	48.96
Melaka	2019	5,448	3.10	170,092	96.90
	2020	5,448	3.10	170,092	96.90
	2021	5,448	3.10	170,092	96.90
	2022	5,448	3.10	170,092	96.90
Negeri Sembilan	2019	157,097	23.53	513,078	76.47
	2020	157,907	23.53	513,078	76.47
	2021	157,866	23.53	513,119	76.47
	2022	157,867	23.53	513,118	76.47
Pahang	2019	2,012,485	55.69	1,600,945	44.31
	2020	2,015,936	55.79	1,597,494	44.21
	2021	2,044,146	56.57	1,569,284	43.43
	2022	2,037,155	56.38	1,576,275	43.62
Perak	2019	1,013,156	47.91	1,101,476	52.09
	2020	1,010,289	47.78	1,104,343	52.22
	2021	1,014,618	47.98	1,100,015	52.02
	2022	1,015,684	48.03	1,098,949	51.97
Perlis	2019	11,545	14.15	70,055	85.85
	2020	11,546	14.15	70,054	85.85
	2021	11,553	14.16	70,047	85.84
	2022	11,476	14.06	70,124	85.94

Jadual 1.17: Kawasan berhutan dan tidak berhutan, Malaysia, 2019-2022 (samb.)Table 1.17: *Forested and non-forested areas, Malaysia, 2019-2022 (cont'd)*

Negeri State	Tahun Year	Berhutan Forested		Tidak Berhutan Non-Forested	
		Hektar Hectares	(%)	Hektar Hectares	(%)
Pulau Pinang	2019	7,752	7.52	95,352	92.48
	2020	7,752	7.52	95,352	92.48
	2021	7,752	7.52	95,352	92.48
	2022	9,090	8.82	94,014	91.18
Selangor	2019	251,689	31.69	542,435	68.31
	2020	251,721	31.70	543,403	68.30
	2021	251,720	31.70	542,404	68.30
	2022	252,206	31.76	541,918	68.24
Terengganu	2019	676,823	52.23	618,935	47.77
	2020	676,823	52.23	618,934	47.77
	2021	676,823	52.23	618,934	47.77
	2022	676,823	52.23	618,935	47.77
W.P. Kuala Lumpur	2019	2,049	8.44	22,222	91.56
	2020	2,049	8.44	22,222	91.56
	2021	2,066	8.51	22,205	91.49
	2022	2,066	8.51	22,205	91.49
Sabah	2019	4,679,594	63.56	2,682,406	36.44
	2020	4,679,594	63.56	2,682,480	36.44
	2021	4,606,475	62.57	2,755,599	37.43
	2022	4,606,475	62.17	2,803,549	37.83
Sarawak	2019	7,721,615	62.05	4,723,413	37.95
	2020	7,671,222	61.64	4,773,806	38.36
	2021	7,645,454	61.43	4,799,574	38.57
	2022	7,638,499	61.52	4,778,601	38.48

Sumber: Kementerian Sumber Asli dan Kelestarian Alam, Jabatan Perhutanan Semenanjung Malaysia, Jabatan Perhutanan Sabah dan Jabatan Hutan Sarawak

Source: Ministry of Natural Resources and Environmental Sustainability, Forestry Department Peninsular Malaysia, Sabah Forestry Department and Forest Department Sarawak

Nota/ Notes:

Data bermula tahun 2019 hingga 2022 telah dikemaskini oleh Kementerian Sumber Asli dan Kelestarian Alam (NRES) berdasarkan rujukan rasmi negara bagi pelaporan di peringkat domestik dan antarabangsa.

Data from 2019 to 2022 have been updated by the Ministry of Natural Resources and Environmental Sustainability (NRES) based on official national references for reporting at both domestic and international levels.

Peratus keluasan litupan hutan setiap tahun dikira berdasarkan keluasan tanah yang diwartakan bagi tahun masing-masing.

The annual percentage of forest cover is calculated based on the gazetted land area for each respective year.

Jadual 1.18: Keluasan hutan simpanan kekal, Malaysia, 2019-2022

Table 1.18: Area of permanent reserved forest, Malaysia, 2019-2022

Hektar
Hectares

Negeri State	2019	2020	2021	2022
Malaysia	12,318,472	12,345,682	12,362,029	12,365,600
Semenanjung Malaysia ¹ Peninsular Malaysia	4,812,326	4,806,334	4,848,448	4,852,019
Johor	334,292	334,292	334,502	335,003
Kedah	341,976	341,976	341,881	344,175
Kelantan	629,775	629,881	629,881	629,881
Melaka	5,199	5,199	5,199	5,199
Negeri Sembilan	155,492	155,143	155,102	155,087
Pahang	1,550,687	1,545,610	1,588,265	1,589,092
Perak	988,591	987,632	986,848	986,021
Perlis	10,628	10,629	10,739	10,854
Pulau Pinang	5,101	5,387	5,387	6,063
Selangor	250,208	250,208	250,250	250,250
Terengganu	540,309	540,309	540,309	540,309
W.P. Kuala Lumpur	68	68	85	85
Sabah ³	3,541,266	3,574,468	3,574,468	3,574,468
Sarawak ⁴	3,964,880	3,964,880	3,939,113	3,939,113

Sumber: Kementerian Sumber Asli dan Kelestarian Alam, Jabatan Perhutanan Semenanjung Malaysia, Jabatan Perhutanan Sabah dan Jabatan Hutan Sarawak

Source: Ministry of Natural Resources and Environmental Sustainability, Forestry Department Peninsular Malaysia, Sabah Forestry Department and Forest Department Sarawak

Nota/ Notes:

¹ Hutan Simpanan Kekal di Semenanjung Malaysia terdiri daripada hutan darat, paya gambut, paya laut dan ladang hutan
Permanent reserved forest in Peninsular Malaysia consists of inland forest, peat swamp forest, mangrove forest and forest plantation

² Mulai 2017 pelaporan keluasan Hutan Simpanan Kekal (HSK) di Semenanjung Malaysia adalah berdasarkan keluasan HSK yang diwartakan sahaja (tidak termasuk cadangan HSK).
Since 2017, Permanent Reserve Forest (PRF) data in Peninsular Malaysia were reported based on gazetted PRF only (proposed PRF not included)

³ Hutan Simpanan Kekal di Sabah adalah merupakan Hutan Simpan yang diwartakan di bawah Akta Enakmen Hutan 1968 dan Peraturan Hutan 1969 yang terdiri daripada hutan darat, paya gambut, paya laut dan ladang hutan
Permanent Reserved Forest in Sabah reported based on gazetted FR under Forest Enactment 1968 and Forest Rules 1969 consists of inland forest, peat swamp forest, mangrove forest and forest plantation.

⁴ Permanent Reserved Forest (PRF) di Sarawak terdiri daripada paya gambut, paya laut dan bukit
Permanent Reserved Forest in Sarawak consists of peat swamp forest, mangrove forest and hill

Data bermula tahun 2019 hingga 2022 telah dikemaskini oleh Kementerian Sumber Asli dan Kelestarian Alam (NRES) berdasarkan rujukan rasmi negara bagi pelaporan di peringkat domestik dan antarabangsa.
Data from 2019 to 2022 have been updated by the Ministry of Natural Resources and Environmental Sustainability (NRES) based on official national references for reporting at both domestic and international levels.

Jadual 1.19: Keluasan hutan paya gambut mengikut negeri, Malaysia, 2019-2022

Table 1.19: Area of peat swamp forest by state, Malaysia, 2019-2022

 Hektar
Hectares

Negeri State	2019	2020	2021	2022
Malaysia	632,642	627,469	583,090	581,070
Semenanjung Malaysia ¹ Peninsular Malaysia	253,447	253,447	210,121	210,121
Johor	3,796	3,796	3,796	3,796
Pahang	140,830	140,830	97,732	97,732
Selangor	82,890	82,890	82,662	82,662
Terengganu	25,931	25,931	25,931	25,931
Sabah ²	53,108	53,108	52,868	52,868
Sarawak ³	326,087	320,914	320,101	318,081

Sumber: Kementerian Sumber Asli dan Kelestarian Alam, Jabatan Perhutanan Semenanjung Malaysia, Jabatan Perhutanan Sabah dan Jabatan Hutan Sarawak

Source: Ministry of Natural Resources and Environmental Sustainability, Forestry Department Peninsular Malaysia, Sabah Forestry Department and Forest Department Sarawak

Nota/ Notes:

¹ Bagi Semenanjung Malaysia merujuk kepada hutan paya gambut di dalam Hutan Simpanan Kekal (HSK)
For Peninsular Malaysia refer to peat swamp forests in the Permanent Reserved Forest (PRF)

² Bagi Sabah, laporan merujuk kepada luas kawasan litupan hutan paya gambut di dalam Hutan Simpan dan Tanah Kerajaan
For Sabah, the report refers to the area of peat swamp forests within the Forest Reserves and State Land

³ Bagi Sarawak merujuk kepada hutan paya gambut di dalam Permanent Reserved Forest (PRF), Totally Protected Area (TPA) [National Park, Nature Reserve dan Wild Life Sanctuaries] dan hutan tanah kerajaan
For Sarawak refer to peat swamp forests in the Permanent Reserved Forest (PRF), the Totally Protected Area (TPA) [National Park, Nature Reserve and Wild Life Sanctuaries] and government land forests

Data bermula tahun 2019 hingga 2022 telah dikemaskini oleh Kementerian Sumber Asli dan Kelestarian Alam (NRES) berdasarkan rujukan rasmi negara bagi pelaporan di peringkat domestik dan antarabangsa.
Data from 2019 to 2022 have been updated by the Ministry of Natural Resources and Environmental Sustainability (NRES) based on official national references for reporting at both domestic and international levels.

Jadual 1.20: Keluasan hutan paya laut mengikut negeri, Malaysia, 2019-2022

Table 1.20: Area of mangrove forest by state, Malaysia, 2019-2022

Hektar
Hectares

Negeri State	2019	2020	2021	2022
Malaysia	552,810	552,799	528,268	523,864
Semenanjung Malaysia ¹ Peninsular Malaysia	89,697	89,694	89,925	90,466
Johor	18,198	18,198	18,367	18,076
Kedah	6,201	6,201	6,201	6,714
Melaka	136	136	238	238
Negeri Sembilan	101	101	101	99
Pahang	2,416	2,412	2,376	1,822
Perak	42,216	42,216	42,212	42,411
Perlis	13	14	14	13
Pulau Pinang	381	381	381	1,058
Selangor	18,998	18,998	18,998	18,998
Terengganu	1,037	1,037	1,037	1,037
Sabah ²	390,526	390,526	365,764	365,764
Sarawak ³	72,587	72,579	72,579	67,634

Sumber: Kementerian Sumber Asli dan Kelestarian Alam, Jabatan Perhutanan Semenanjung Malaysia, Jabatan Perhutanan Sabah dan Jabatan Hutan Sarawak

Source: Ministry of Natural Resources and Environmental Sustainability, Forestry Department Peninsular Malaysia, Sabah Forestry Department and Forest Department Sarawak

Nota/ Notes:

¹ Bagi Semenanjung Malaysia merujuk kepada hutan paya gambut di dalam Hutan Simpanan Kekal (HSK)
For Peninsular Malaysia refer to peat swamp forests in the Permanent Reserved Forest (PRF)

² Bagi Sabah, laporan merujuk kepada luas kawasan litupan hutan paya laut di dalam Hutan Simpan dan Tanah Kerajaan
For Sabah, the report refers to the area of mangrove forests within the Forest Reserves and State Land

³ Bagi Sarawak merujuk kepada hutan paya laut di dalam Permanent Reserved Forest (PRF), Totally Protected Area (TPA) [National Park, Nature Reserve dan Wild Life Sanctuaries] dan hutan tanah kerajaan
For Sarawak refer to mangrove forests in the Permanent Reserved Forest (PRF), the Totally Protected Area (TPA) [National Park, Nature Reserve and Wild Life Sanctuaries] and government land forests

Data bermula tahun 2019 hingga 2022 telah dikemaskini oleh Kementerian Sumber Asli dan Kelestarian Alam (NRES) berdasarkan rujukan rasmi negara bagi pelaporan di peringkat domestik dan antarabangsa.
Data from 2019 to 2022 have been updated by the Ministry of Natural Resources and Environmental Sustainability (NRES) based on official national references for reporting at both domestic and international levels.

Jadual 1.21: Status kualiti udara mengikut stesen, 2020-2024

Table 1.21: Air quality status by station, 2020-2024

Table 1.21: Air quality status by station, 2020-2024						Bilangan hari Number of days
Negeri/ Stesen State/ Station	Tahun Year	Baik Good	Sederhana Moderate	Tidak Sihat Unhealthy	Sangat Tidak Sihat Very Unhealthy	Berbahaya Hazardous
		(0-50)	(51-100)	(101-200)	(201-300)	(>300)
Johor						
Batu Pahat	2020	191	175	-	-	-
	2021	144	221	-	-	-
	2022	198	166	-	-	-
	2023	141	210	14	-	-
	2024	91	275	-	-	-
Kluang	2020	277	89	-	-	-
	2021	203	162	-	-	-
	2022	216	149	-	-	-
	2023	122	243	-	-	-
	2024	122	244	-	-	-
Kota Tinggi	2020	293	73	-	-	-
	2021	209	154	2	-	-
	2022	231	131	3	-	-
	2023	161	203	1	-	-
	2024	205	159	2	-	-
Larkin	2020	47	319	-	-	-
	2021	34	328	3	-	-
	2022	49	315	1	-	-
	2023	12	341	11	-	-
	2024	27	339	-	-	-
Pasir Gudang	2020	122	244	-	-	-
	2021	95	269	1	-	-
	2022	89	269	-	-	-
	2023	72	289	4	-	-
	2024	73	293	-	-	-
Pengerang	2020	274	92	-	-	-
	2021	177	188	-	-	-
	2022	168	196	-	-	-
	2023	190	174	1	-	-
	2024	191	174	-	-	-
Segamat	2020	127	239	-	-	-
	2021	123	241	1	-	-
	2022	112	253	-	-	-
	2023	101	255	9	-	-
	2024	131	235	-	-	-
Tangkak	2020	137	229	-	-	-
	2021	96	265	1	-	-
	2022	105	260	-	-	-
	2023	85	274	6	-	-
	2024	71	294	-	-	-

Jadual 1.21: Status kualiti udara mengikut stesen, 2020-2024 (samb.)

Table 1.21: Air quality status by station, 2020-2024 (cont'd)

Air quality status by station, 2020-2024 (cont'd)						Bilangan hari Number of days
Negeri/ Stesen State/ Station	Tahun Year	Baik Good (0-50)	Sederhana Moderate (51-100)	Tidak Sihat Unhealthy (101-200)	Sangat Tidak Sihat Very Unhealthy (201-300)	Berbahaya Hazardous (>300)
Kedah						
Alor Setar	2020	156	210	-	-	-
	2021	180	185	-	-	-
	2022	208	157	-	-	-
	2023	163	202	-	-	-
	2024	134	228	4	-	-
Kulim	2020	128	238	-	-	-
	2021	169	196	-	-	-
	2022	144	221	-	-	-
	2023	77	288	-	-	-
	2024	81	283	-	-	-
Langkawi	2020	228	138	-	-	-
	2021	257	108	-	-	-
	2022	284	81	-	-	-
	2023	220	145	-	-	-
	2024	192	174	-	-	-
Sungai Petani	2020	128	238	-	-	-
	2021	97	268	-	-	-
	2022	122	243	-	-	-
	2023	138	227	-	-	-
	2024	98	268	-	-	-
Kelantan						
Kota Bharu	2020	92	274	-	-	-
	2021	82	281	-	-	-
	2022	104	261	-	-	-
	2023	64	299	2	-	-
	2024	66	300	-	-	-
Tanah Merah	2020	79	287	-	-	-
	2021	112	252	-	-	-
	2022	134	230	-	-	-
	2023	74	287	4	-	-
	2024	89	274	3	-	-
Melaka						
Alor Gajah	2020	131	234	-	-	-
	2021	112	253	-	-	-
	2022	131	233	-	-	-
	2023	119	238	8	-	-
	2024	84	282	-	-	-
Bandaraya Melaka	2020	104	261	1	-	-
	2021	88	276	-	-	-
	2022	103	262	-	-	-
	2023	45	316	4	-	-
	2024	58	308	-	-	-

Jadual 1.21: Status kualiti udara mengikut stesen, 2020-2024 (samb.)

Table 1.21: Air quality status by station, 2020-2024 (cont'd)

Bilangan hari
Number of days

Negeri/ Stesen State/ Station	Tahun Year	Baik Good (0-50)	Sederhana Moderate (51-100)	Tidak Sihat Unhealthy (101-200)	Sangat Tidak Sihat Very Unhealthy (201-300)	Berbahaya Hazardous (>300)
Melaka						
Bukit Rambai	2020	81	285	-	-	-
	2021	35	330	-	-	-
	2022	56	307	-	-	-
	2023	35	320	10	-	-
	2024	27	304	35	-	-
Negeri Sembilan						
Nilai	2020	25	341	-	-	-
	2021	17	348	-	-	-
	2022	24	341	-	-	-
	2023	26	323	15	-	-
	2024	13	340	13	-	-
Port Dickson	2020	110	256	-	-	-
	2021	62	302	1	-	-
	2022	81	282	2	-	-
	2023	35	319	11	-	-
	2024	78	287	1	-	-
Seremban	2020	105	259	2	-	-
	2021	107	258	-	-	-
	2022	23	342	-	-	-
	2023	40	315	10	-	-
	2024	82	281	3	-	-
Pahang						
Balok Baru	2020	162	194	9	1	-
	2021	147	218	-	-	-
	2022	157	200	8	-	-
	2023	86	270	9	-	-
	2024	98	258	8	2	-
Jerantut	2020	147	219	-	-	-
	2021	153	212	-	-	-
	2022	184	174	-	-	-
	2023	152	213	-	-	-
	2024	205	161	-	-	-
Kuantan	2020	229	137	-	-	-
	2021	205	160	-	-	-
	2022	232	171	-	-	-
	2023	138	224	3	-	-
	2024	148	218	-	-	-
Rompin	2020	225	137	4	-	-
	2021	109	248	8	-	-
	2022	237	126	2	-	-
	2023	182	182	1	-	-
	2024	133	215	18	-	-

Jadual 1.21: Status kualiti udara mengikut stesen, 2020-2024 (samb.)

Table 1.21: Air quality status by station, 2020-2024 (cont'd)

Table 1.21: Air quality status by station, 2020-2024 (cont'd)						Bilangan hari Number of days
Negeri/ Stesen State/ Station	Tahun Year	Baik Good (0-50)	Sederhana Moderate (51-100)	Tidak Sihat Unhealthy (101-200)	Sangat Tidak Sihat Very Unhealthy (201-300)	Berbahaya Hazardous (>300)
Pahang						
Temerloh	2020	102	262	2	-	-
	2021	112	253	-	-	-
	2022	164	198	2	-	-
	2023	126	239	-	-	-
	2024	116	250	-	-	-
Perak						
Pegoh, Ipoh	2020	48	318	-	-	-
	2021	61	304	-	-	-
	2022	58	307	-	-	-
	2023	87	278	-	-	-
	2024	52	314	-	-	-
Seri Manjung	2020	69	297	-	-	-
	2021	104	261	-	-	-
	2022	136	229	-	-	-
	2023	52	312	1	-	-
	2024	53	313	-	-	-
Taiping	2020	89	277	-	-	-
	2021	120	245	-	-	-
	2022	172	193	-	-	-
	2023	94	269	2	-	-
	2024	58	308	-	-	-
Tanjung Malim	2020	308	57	-	-	-
	2021	254	111	-	-	-
	2022	185	179	1	-	-
	2023	177	183	5	-	-
	2024	147	197	22	-	-
Tasek, Ipoh	2020	59	307	1	-	-
	2021	34	331	-	-	-
	2022	56	309	-	-	-
	2023	27	337	1	-	-
	2024	22	344	-	-	-
Perlis						
Kangar	2020	175	191	-	-	-
	2021	191	172	-	-	-
	2022	248	117	-	-	-
	2023	178	187	-	-	-
	2024	162	204	-	-	-
Pulau Pinang						
Balik Pulau	2020	83	281	2	-	-
	2021	132	233	-	-	-
	2022	167	197	-	-	-
	2023	128	237	-	-	-
	2024	124	242	-	-	-

Jadual 1.21: Status kualiti udara mengikut stesen, 2020-2024 (samb.)

Table 1.21: Air quality status by station, 2020-2024 (cont'd)

Bilangan hari
Number of days

Negeri/ Stesen State/ Station	Tahun Year	Baik Good (0-50)	Sederhana Moderate (51-100)	Tidak Sihat Unhealthy (101-200)	Sangat Tidak Sihat Very Unhealthy (201-300)	Berbahaya Hazardous (>300)
Pulau Pinang						
Perai	2020	77	289	-	-	-
	2021	88	277	-	-	-
	2022	95	270	-	-	-
	2023	41	324	-	-	-
	2024	77	289	-	-	-
Seberang Jaya	2020	36	330	-	-	-
	2021	40	325	-	-	-
	2022	47	318	-	-	-
	2023	15	342	8	-	-
	2024	20	346	-	-	-
USM	2020	114	252	-	-	-
	2021	113	252	-	-	-
	2022	129	235	-	-	-
	2023	91	274	-	-	-
	2024	91	275	-	-	-
Sabah						
Keningau	2020	229	137	-	-	-
	2021	231	134	-	-	-
	2022	285	78	-	-	-
	2023	208	153	-	-	-
	2024	222	143	-	-	-
Kimanis	2020	296	70	-	-	-
	2021	343	19	-	-	-
	2022	355	9	-	-	-
	2023	322	43	-	-	-
	2024	271	77	18	-	-
Kota Kinabalu	2020	270	96	-	-	-
	2021	307	58	-	-	-
	2022	308	57	-	-	-
	2023	234	130	-	-	-
	2024	219	147	-	-	-
Sandakan	2020	292	74	-	-	-
	2021	330	35	-	-	-
	2022	332	33	-	-	-
	2023	282	83	-	-	-
	2024	267	99	-	-	-
Tawau	2020	358	7	-	-	-
	2021	345	20	-	-	-
	2022	206	156	-	-	-
	2023	136	229	-	-	-
	2024	129	237	-	-	-

Jadual 1.21: Status kualiti udara mengikut stesen, 2020-2024 (samb.)

Table 1.21: Air quality status by station, 2020-2024 (cont'd)

Table 1.21: Air quality status by station, 2020-2024 (cont'd)						Bilangan hari Number of days
Negeri/ Stesen State/ Station	Tahun Year	Baik Good (0-50)	Sederhana Moderate (51-100)	Tidak Sihat Unhealthy (101-200)	Sangat Tidak Sihat Very Unhealthy (201-300)	Berbahaya Hazardous (>300)
Sarawak						
Bintulu	2020	162	204	-	-	-
	2021	145	220	-	-	-
	2022	107	258	-	-	-
	2023	53	311	1	-	-
	2024	106	260	-	-	-
ILP, Miri	2020	208	156	2	-	-
	2021	279	86	-	-	-
	2022	304	61	-	-	-
	2023	223	142	-	-	-
	2024	282	83	1	-	-
Kapit	2020	359	7	-	-	-
	2021	325	40	-	-	-
	2022	316	49	-	-	-
	2023	257	108	-	-	-
	2024	314	52	-	-	-
Kuching	2020	278	88	-	-	-
	2021	289	76	-	-	-
	2022	339	25	-	-	-
	2023	183	179	3	-	-
	2024	260	104	2	-	-
Limbang	2020	332	34	-	-	-
	2021	314	51	-	-	-
	2022	340	25	-	-	-
	2023	237	128	-	-	-
	2024	288	78	-	-	-
Miri	2020	143	223	-	-	-
	2021	154	211	-	-	-
	2022	247	117	-	-	-
	2023	183	182	-	-	-
	2024	225	141	-	-	-
Mukah	2020	344	22	-	-	-
	2021	304	60	-	-	-
	2022	330	34	-	-	-
	2023	218	147	-	-	-
	2024	283	83	-	-	-
Samalaju	2020	251	115	-	-	-
	2021	227	138	-	-	-
	2022	168	197	-	-	-
	2023	73	292	-	-	-
	2024	128	238	-	-	-

Jadual 1.21: Status kualiti udara mengikut stesen, 2020-2024 (samb.)

Table 1.21: Air quality status by station, 2020-2024 (cont'd)

Table 1.21: Air quality status by station, 2020-2024 (cont'd)						Bilangan hari Number of days
Negeri/ Stesen State/ Station	Tahun Year	Baik Good (0-50)	Sederhana Moderate (51-100)	Tidak Sihat Unhealthy (101-200)	Sangat Tidak Sihat Very Unhealthy (201-300)	Berbahaya Hazardous (>300)
Sarawak						
Samarahan	2020	334	31	-	-	-
	2021	298	66	-	-	-
	2022	297	66	-	-	-
	2023	186	178	1	-	-
	2024	258	106	2	-	-
Sarikei	2020	328	38	-	-	-
	2021	267	98	-	-	-
	2022	270	95	-	-	-
	2023	277	88	-	-	-
	2024	288	78	-	-	-
Sibu	2020	291	75	-	-	-
	2021	296	69	-	-	-
	2022	314	49	2	-	-
	2023	263	100	2	-	-
	2024	280	84	2	-	-
Sri Aman	2020	320	46	-	-	-
	2021	289	76	-	-	-
	2022	313	51	1	-	-
	2023	259	98	8	-	-
	2024	308	56	2	-	-
Selangor						
Banting	2020	38	328	-	-	-
	2021	28	322	5	-	-
	2022	33	330	2	-	-
	2023	7	346	12	-	-
	2024	2	364	-	-	-
Klang	2020	1	365	-	-	-
	2021	-	363	2	-	-
	2022	3	360	2	-	-
	2023	2	343	19	-	-
	2024	12	352	3	-	-
Kuala Selangor	2020	68	298	-	-	-
	2021	36	329	-	-	-
	2022	54	308	1	-	-
	2023	51	311	3	-	-
	2024	89	277	-	-	-
Petaling Jaya	2020	12	352	2	-	-
	2021	2	333	8	-	-
	2022	8	357	-	-	-
	2023	8	346	11	-	-
	2024	21	344	1	-	-

Jadual 1.21: Status kualiti udara mengikut stesen, 2020-2024 (samb.)

Table 1.21: Air quality status by station, 2020-2024 (cont'd)

Table 1.21: Air quality status by station, 2020-2024 (cont'd)						Bilangan hari Number of days
Negeri/ Stesen State/ Station	Tahun Year	Baik Good	Sederhana Moderate	Tidak Sihat Unhealthy	Sangat Tidak Sihat Very Unhealthy	Berbahaya Hazardous
		(0-50)	(51-100)	(101-200)	(201-300)	(>300)
Selangor						
Shah Alam	2020	16	347	1	-	-
	2021	4	355	2	-	-
	2022	8	356	1	-	-
	2023	16	335	14	-	-
	2024	15	351	-	-	-
Terengganu						
Besut	2020	191	175	-	-	-
	2021	191	174	-	-	-
	2022	191	173	-	-	-
	2023	125	240	-	-	-
	2024	148	218	-	-	-
Kemaman	2020	155	211	-	-	-
	2021	200	165	-	-	-
	2022	186	179	-	-	-
	2023	107	257	1	-	-
	2024	96	270	-	-	-
Kuala Terengganu	2020	79	287	-	-	-
	2021	85	279	-	-	-
	2022	87	278	-	-	-
	2023	72	290	3	-	-
	2024	69	297	-	-	-
Paka	2020	281	85	-	-	-
	2021	227	138	-	-	-
	2022	240	122	-	-	-
	2023	132	232	1	-	-
	2024	128	238	-	-	-
Wilayah Persekutuan						
Batu Muda, Kuala Lumpur	2020	25	341	-	-	-
	2021	35	328	1	-	-
	2022	24	340	1	-	-
	2023	3	352	8	-	-
	2024	18	348	-	-	-
Cheras, Kuala Lumpur	2020	38	325	3	-	-
	2021	41	319	4	-	-
	2022	28	332	5	-	-
	2023	16	318	31	-	-
	2024	11	343	12	-	-
Labuan	2020	179	186	-	-	-
	2021	165	200	-	-	-
	2022	250	114	-	-	-
	2023	213	152	-	-	-
	2024	197	169	-	-	-

Jadual 1.21: Status kualiti udara mengikut stesen, 2020-2024 (samb.)

Table 1.21: Air quality status by station, 2020-2024 (cont'd)

Table 1.21: Air quality status by station, 2020-2024 (cont'd)						Bilangan hari Number of days
Negeri/ Stesen State/ Station	Tahun Year	Baik Good (0-50)	Sederhana Moderate (51-100)	Tidak Sihat Unhealthy (101-200)	Sangat Tidak Sihat Very Unhealthy (201-300)	Berbahaya Hazardous (>300)
Wilayah Persekutuan						
Putrajaya	2020	32	330	4	-	-
	2021	57	304	4	-	-
	2022	98	267	-	-	-
	2023	21	329	15	-	-
	2024	8	357	1	-	-

Nota: Stesen yang tidak mencukupi 365 hari adalah disebabkan masalah teknikal

Note: Stations with inadequate 365 days is due to technical problem

Sumber: Jabatan Alam Sekitar

Source: Department of Environment

Jadual 1.22: Bacaan minimum dan maksimum bulanan Indeks Pencemaran Udara (IPU)¹, Malaysia, 2024

Table 1.22: Monthly minimum and maximum Air Pollutant Index (API), Malaysia, 2024

Negeri/ Stesen State/ Station	Jan.		Feb.		Mac Mar.		Apr.		Mei May		Jun June	
Johor	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.
Batu Pahat	15	53	35	59	34	66	33	90	30	64	27	76
Kluang	22	53	32	58	34	62	32	66	35	65	41	68
Kota Tinggi	10	51	19	55	19	60	18	109	19	54	18	111
Larkin	23	70	41	68	35	75	45	90	34	69	36	75
Pasir Gudang	18	55	29	61	25	60	26	69	35	71	36	67
Pengerang	14	52	16	53	17	61	19	62	24	58	15	64
Tangkak	30	60	39	66	28	78	25	78	31	56	32	70
Segamat	11	54	29	77	27	76	26	90	22	62	18	72
Johor	Julai July		Ogos Aug.		Sept.		Okt. Oct.		Nov.		Dis. Dec.	
Johor	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.
Batu Pahat	25	84	43	72	25	81	21	77	23	67	25	63
Kluang	47	94	30	62	25	67	21	68	14	64	17	55
Kota Tinggi	22	80	23	62	26	64	22	84	16	97	19	60
Larkin	44	74	41	76	41	75	38	83	36	80	36	63
Pasir Gudang	37	69	29	78	38	75	38	93	22	93	23	62
Pengerang	24	68	34	64	27	72	24	72	15	66	21	73
Tangkak	29	72	39	65	47	69	25	70	24	63	17	62
Segamat	30	75	24	80	23	64	19	67	14	63	17	52
Kedah	Jan.		Feb.		Mac Mar.		Apr.		Mei May		Jun June	
Kedah	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.
Alor Setar	29	68	41	89	53	83	58	83	62	152	17	103
Kulim	31	71	46	70	36	71	39	70	32	71	19	84
Langkawi	26	62	28	62	38	71	35	66	19	67	14	70
Sungai Petani	24	69	37	68	36	82	41	73	36	73	17	88
Kedah	Julai July		Ogos Aug.		Sept.		Okt. Oct.		Nov.		Dis. Dec.	
Kedah	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.
Alor Setar	20	87	10	76	12	71	15	55	12	54	21	60
Kulim	29	82	20	71	16	69	26	58	23	54	33	77
Langkawi	13	78	10	75	13	37	12	45	15	52	15	60
Sungai Petani	26	89	14	78	15	68	16	73	11	75	21	64
Kelantan	Jan.		Feb.		Mac Mar.		Apr.		Mei May		Jun June	
Kelantan	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.
Kota Bharu	18	81	43	77	44	67	50	80	37	90	21	92
Tanah Merah	10	73	45	72	40	81	51	97	41	152	32	90
Kelantan	Julai July		Ogos Aug.		Sept.		Okt. Oct.		Nov.		Dis. Dec.	
Kelantan	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.
Kota Bharu	31	97	17	78	16	85	18	88	20	78	21	79
Tanah Merah	27	95	29	68	28	80	17	65	12	59	13	73

Jadual 1.22: Bacaan minimum dan maksimum bulanan Indeks Pencemaran Udara (IPU)¹, Malaysia, 2024 (samb.)

Table 1.22: Monthly minimum and maximum Air Pollutant Index (API), Malaysia, 2024 (cont'd)

Negeri/ Stesen State/ Station	Jan.		Feb.		Mac Mar.		Apr.		Mei May		Jun June	
Melaka	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.
Alor Gajah	20	57	35	67	29	72	31	94	25	70	21	80
Bandaraya Melaka	25	64	39	63	41	75	36	94	20	68	23	87
Bukit Rambai	23	67	49	120	45	150	35	135	36	70	33	156
Melaka	Julai July		Ogos Aug.		Sept.		Okt. Oct.		Nov.		Dis. Dec.	
Melaka	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.
Alor Gajah	39	82	26	72	26	73	25	67	15	71	18	60
Bandaraya Melaka	27	78	27	68	20	71	29	73	23	81	25	62
Bukit Rambai	41	86	34	137	29	76	26	183	23	190	27	119
Negeri Sembilan	Jan.		Feb.		Mac Mar.		Apr.		Mei May		Jun June	
Negeri Sembilan	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.
Nilai	25	100	40	81	38	87	38	149	44	72	42	129
Port Dickson	20	69	39	62	30	80	30	101	20	68	22	93
Seremban	20	138	40	64	44	75	26	94	28	64	18	80
Negeri Sembilan	Julai July		Ogos Aug.		Sept.		Okt. Oct.		Nov.		Dis. Dec.	
Negeri Sembilan	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.
Nilai	49	155	37	117	42	117	42	100	31	108	32	85
Port Dickson	25	83	23	67	28	76	27	74	30	57	32	65
Seremban	28	73	30	69	31	75	30	97	15	63	17	61
Pahang	Jan.		Feb.		Mac Mar.		Apr.		Mei May		Jun June	
Pahang	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.
Balok Baru	24	57	29	67	30	159	38	160	26	84	27	62
Jerantut	14	57	18	86	16	57	15	67	25	61	24	82
Kuantan	20	57	28	60	26	64	23	63	26	56	24	59
Rompin	11	54	26	57	28	152	30	180	24	180	16	61
Temerloh	14	60	40	74	26	65	29	83	31	61	23	78
Pahang	Julai July		Ogos Aug.		Sept.		Okt. Oct.		Nov.		Dis. Dec.	
Pahang	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.
Balok Baru	33	108	35	76	17	67	28	110	14	100	10	275
Jerantut	26	81	27	73	27	71	22	63	15	55	18	53
Kuantan	36	80	22	84	22	78	25	66	12	60	16	55
Rompin	34	72	26	61	36	65	19	68	14	59	11	56
Temerloh	35	73	24	67	18	66	18	61	17	55	20	59
Perak	Jan.		Feb.		Mac Mar.		Apr.		Mei May		Jun June	
Perak	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.
Pegoh, Ipoh	32	69	50	66	40	70	46	74	30	65	27	77
Seri Manjung	36	73	52	75	43	80	45	83	41	75	28	82
Taiping	26	82	34	69	31	76	38	72	30	77	23	76
Tanjung Malim	22	61	34	61	24	66	30	69	25	132	20	124
Tasek, Ipoh	35	78	52	69	48	78	37	83	42	72	28	77

Jadual 1.22: Bacaan minimum dan maksimum bulanan Indeks Pencemaran Udara (IPU)¹, Malaysia, 2024 (samb.)

Table 1.22: Monthly minimum and maximum Air Pollutant Index (API), Malaysia, 2024 (cont'd)

Negeri/ Stesen State/ Station	Julai July		Ogos Aug.		Sept.		Okt. Oct.		Nov.		Dis. Dec.	
Perak	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.
Pegoh, Ipoh	38	82	35	86	25	80	28	66	26	60	30	62
Seri Manjung	33	86	20	71	15	74	28	72	27	58	26	70
Taiping	36	98	21	83	18	68	22	66	21	60	21	68
Tanjung Malim	22	142	28	151	24	124	23	104	15	80	17	56
Tasek, Ipoh	35	89	36	86	30	84	30	67	25	68	28	68
Perlis	Jan.		Feb.		Mac Mar.		Apr.		Mei May		Jun June	
	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.
Kangar	30	67	30	66	42	71	40	68	22	63	12	75
Perlis	Julai July		Ogos Aug.		Sept.		Okt. Oct.		Nov.		Dis. Dec.	
	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.
Kangar	17	83	10	78	12	61	14	52	15	53	17	64
Pulau Pinang	Jan.		Feb.		Mac Mar.		Apr.		Mei May		Jun June	
	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.
Balik Pulau	20	75	42	70	39	71	34	70	18	66	16	73
Perai	31	72	41	76	35	80	41	81	24	69	23	78
Seberang Jaya	38	81	47	76	55	81	52	79	30	72	26	86
USM	29	69	38	73	41	74	37	71	24	65	21	74
Pulau Pinang	Julai July		Ogos Aug.		Sept.		Okt. Oct.		Nov.		Dis. Dec.	
	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.
Balik Pulau	18	81	13	74	15	66	17	65	16	51	21	65
Perai	23	96	23	74	16	65	22	61	19	56	26	82
Seberang Jaya	28	96	23	77	30	83	26	66	32	65	28	89
USM	16	82	18	70	23	64	25	62	17	54	21	71
Sabah	Jan.		Feb.		Mac Mar.		Apr.		Mei May		Jun June	
	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.
Keningau	24	62	26	58	28	57	27	59	26	59	19	55
Kimanis	11	61	15	67	47	176	19	178	10	41	12	36
Kota Kinabalu	17	59	30	66	47	83	16	58	14	55	12	38
Sandakan	22	50	24	51	28	62	20	54	20	53	17	56
Tawau	25	59	38	92	28	64	26	67	22	55	24	61
Sabah	Julai July		Ogos Aug.		Sept.		Okt. Oct.		Nov.		Dis. Dec.	
	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.
Keningau	16	66	20	55	26	71	16	63	18	63	14	57
Kimanis	13	62	11	53	12	63	16	60	13	57	10	47
Kota Kinabalu	10	67	15	52	22	72	16	63	13	64	13	55
Sandakan	18	56	26	54	21	70	21	59	26	62	15	52
Tawau	24	63	24	57	30	87	21	69	31	63	20	57

Jadual 1.22: Bacaan minimum dan maksimum bulanan Indeks Pencemaran Udara (IPU)¹, Malaysia, 2024 (samb.)

Table 1.22: Monthly minimum and maximum Air Pollutant Index (API), Malaysia, 2024 (cont'd)

Negeri/ Stesen State/ Station	Jan.		Feb.		Mac Mar.		Apr.		Mei May		Jun June	
Sarawak	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.
Bintulu	22	64	33	79	23	70	17	64	23	61	15	66
ILP, Miri	15	55	18	53	36	123	14	62	13	49	9	55
Kapit	21	54	21	55	11	57	9	57	10	32	9	41
Kuching	13	54	20	59	23	67	20	62	22	52	13	59
Limbang	13	55	20	53	27	70	17	48	14	43	11	49
Miri	18	68	23	62	35	85	15	55	17	54	12	55
Mukah	14	59	33	57	15	59	14	45	13	46	12	52
Samalaju	21	61	31	65	24	69	21	61	24	58	18	55
Samarahan	13	52	18	55	18	62	21	56	18	55	15	52
Sarikei	10	53	13	61	16	71	9	52	10	72	9	52
Sibu	14	58	17	154	22	61	17	55	13	60	13	52
Sri Aman	11	57	12	54	11	57	11	52	10	49	10	52
Sarawak	Julai July		Ogos Aug.		Sept.		Okt. Oct.		Nov.		Dis. Dec.	
Sarawak	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.
Bintulu	27	79	19	61	17	78	24	67	20	64	19	62
ILP, Miri	11	71	17	56	18	87	14	63	14	56	14	44
Kapit	11	57	9	35	14	62	10	56	12	38	12	49
Kuching	20	72	18	61	27	136	16	67	15	61	14	56
Limbang	15	64	12	52	15	69	13	71	14	72	12	40
Miri	14	78	14	66	19	83	20	65	21	59	23	55
Mukah	15	70	11	54	18	80	14	66	16	52	16	51
Samalaju	21	73	20	61	30	82	27	71	22	62	27	62
Samarahan	19	71	18	58	22	114	16	64	19	57	18	54
Sarikei	12	70	9	48	20	93	17	68	11	53	11	45
Sibu	13	70	13	54	18	86	18	64	14	56	16	47
Sri Aman	13	71	10	49	15	153	11	66	11	41	26	43
Selangor	Jan.		Feb.		Mac Mar.		Apr.		Mei May		Jun June	
Selangor	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.
Banting	54	80	59	81	54	101	68	164	60	87	65	100
Klang	55	89	57	83	52	88	52	153	57	90	38	86
Kuala Selangor	19	62	29	69	30	77	50	74	39	73	21	69
Petaling Jaya	33	83	42	76	50	85	53	96	54	80	34	80
Shah Alam	25	80	36	66	42	94	48	91	45	84	51	84
Selangor	Julai July		Ogos Aug.		Sept.		Okt. Oct.		Nov.		Dis. Dec.	
Selangor	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.
Banting	55	146	55	100	58	100	60	91	33	83	29	77
Klang	35	80	29	78	32	82	34	71	32	65	43	84
Kuala Selangor	30	73	22	77	24	73	18	61	17	61	15	66
Petaling Jaya	28	75	27	72	34	76	35	120	28	62	28	66
Shah Alam	32	73	21	70	26	74	45	73	42	71	36	83

Jadual 1.22: Bacaan minimum dan maksimum bulanan Indeks Pencemaran Udara (IPU)¹, Malaysia, 2024 (samb.)
 Table 1.22: Monthly minimum and maximum Air Pollutant Index (API), Malaysia, 2024 (cont'd)

Negeri/ Stesen State/ Station	Jan.		Feb.		Mac Mar.		Apr.		Mei May		Jun June	
Terengganu	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.
Besut	12	62	36	73	38	65	33	77	30	74	25	66
Kemaman	17	59	41	64	36	70	31	70	16	72	26	67
Kuala Terengganu	16	82	39	71	31	71	46	78	31	68	21	73
Paka	16	60	28	62	26	60	24	69	30	87	17	65
Terengganu	Julai July		Ogos Aug.		Sept.		Okt. Oct.		Nov.		Dis. Dec.	
	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.
Besut	22	76	14	62	13	70	13	60	11	60	11	62
Kemaman	38	75	28	71	23	84	27	68	12	62	14	60
Kuala Terengganu	30	87	27	83	26	84	28	69	14	65	14	91
Paka	31	78	29	89	29	73	27	60	11	53	12	56
Wilayah Persekutuan	Jan.		Feb.		Mac Mar.		Apr.		Mei May		Jun June	
	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.
Batu Muda, Kuala Lumpur	37	73	38	72	45	77	52	93	42	74	40	71
Cheras, Kuala Lumpur	45	83	56	90	54	132	65	155	30	156	37	140
Labuan	18	57	26	55	35	65	20	54	17	58	26	63
Putrajaya	38	73	54	87	56	97	40	95	38	68	36	101
Wilayah Persekutuan	Julai July		Ogos Aug.		Sept.		Okt. Oct.		Nov.		Dis. Dec.	
	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.	Min.	Maks. Max.
Batu Muda, Kuala Lumpur	41	73	38	70	26	74	31	69	32	68	31	71
Cheras, Kuala Lumpur	44	119	33	87	39	100	35	93	36	74	32	72
Labuan	16	75	21	57	24	60	19	85	21	65	21	63
Putrajaya	43	84	24	87	30	75	45	74	34	64	37	76

Nota: ¹ Bacaan status kualiti udara berdasarkan bacaan maksimum harian
 Note: Air quality status readings are based on daily maximum readings

Sumber: Jabatan Alam Sekitar
 Source: Department of Environment

Status Indeks Pencemaran Udara (IPU)
 Air Pollutant Index (API) status

IPU /API	Status IPU/ API status
0-50	Baik/ Good
51-100	Sederhana/ Moderate
101-200	Tidak Sihat/ Unhealthy
201-300	Sangat Tidak Sihat/ Very Unhealthy
>300	Berbahaya/ Hazardous

Jadual 1.23: Purata tahunan kepekatan berdasarkan jenis bahan pencemar di udara, Malaysia, 2020-2024

Table 1.23: Annually average concentration based on the type of pollutants in the air, Malaysia, 2020-2024

Tahun Year	Habuk Halus (PM _{2.5}) Particulate Matter (µg/m ³)	Habuk Halus (PM ₁₀) Particulate Matter (µg/m ³)	Ozon Permukaan Bumi (O ₃) Ground Level Ozone (ppm)	Karbon Monoksida (CO) Carbon Monoxide (ppm)	Sulfur Dioksida (SO ₂) Sulphur Dioxide (ppm)	Nitrogen Dioksida (NO ₂) Nitrogen Dioxide (ppm)
2020	12.29 ^r	19.73	0.0162 ^r	0.545 ^r	0.0015 ^r	0.0057 ^r
2021	12.94 ^r	20.51	0.0161 ^r	0.534 ^r	0.0011	0.0057 ^r
2022	12.26 ^r	19.75 ^r	0.015	0.528	0.0012	0.0063
2023	15.15	23.61 ^r	0.0164	0.555	0.0023 ^r	0.0065
2024	14.1	22.14	0.016	0.528	0.0010	0.0062

Sumber: Jabatan Alam Sekitar
Source: Department of Environment

Jadual 1.24: Purata bulanan kepekatan berdasarkan jenis bahan pencemar udara, Malaysia, 2020-2024

Table 1.24: Monthly average concentration based on the type of air pollutants, Malaysia, 2020-2024

Bahan pencemar udara Air pollutant	Tahun Year	Jan.	Feb.	Mac Mar.	April	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Habuk Halus (PM _{2.5}) Particulate Matter (PM _{2.5}) (µg/m ³)	2020	12.62	12.93	15.01	11.81	11.14	12.21	11.74	15.15	11.52	12.36	10.10	10.92
	2021	11.36	15.94	14.30	14.07	12.62	13.30	15.27	11.76	12.06	13.14	10.02	11.43
	2022	13.60	10.87	12.20	13.25	13.29	11.63	14.86	13.40	12.42	10.48	10.38	10.75
	2023	12.22	11.80	13.93	19.85	14.63	16.11	15.57	16.35	19.92	20.86	10.72	9.79
	2024	10.43	12.75	14.63	14.74	14.54	15.27	15.63	17.74	15.21	14.40	12.33	11.54
Habuk Halus (PM ₁₀) Particulate Matter (PM ₁₀) (µg/m ³)	2020	21.37	23.18	22.96	17.70	17.58	19.48	18.55	22.81	18.23	19.19	17.11	18.55
	2021	19.65	25.74	22.54	22.55	20.28	19.65	22.76	18.16	18.60	20.53	16.84	18.86
	2022	21.98	18.09	19.76	20.59	21.16	18.67	23.55	20.64	19.41	17.35	17.40	18.44
	2023	19.64	20.17	23.12	28.58	23.23	24.82	25.77	25.26	28.71	28.68	17.88	17.48
	2024	19.14	21.06	23.14	24.34	22.60	22.68	23.29	23.57	24.67	22.22	20.03	18.89
Ozon Permukaan Bumi (O ₃) Ground Level Ozone (ppm)	2020	0.019	0.020	0.019	0.018	0.017	0.015	0.014	0.016	0.013	0.014	0.013	0.016
	2021	0.019	0.023	0.016	0.017	0.015	0.016	0.016	0.013	0.014	0.015	0.013	0.017
	2022	0.019	0.014	0.015	0.016	0.015	0.014	0.015	0.015	0.014	0.013	0.014	0.017
	2023	0.018	0.017	0.019	0.019	0.017	0.017	0.015	0.015	0.017	0.017	0.014	0.014
	2024	0.015	0.014	0.016	0.018	0.018	0.017	0.018	0.017	0.017	0.016	0.016	0.015
Karbon Monoksida (CO) Carbon Monoxide (ppm)	2020	0.553	0.544	0.542	0.473	0.496	0.529	0.545	0.585	0.555	0.548	0.549	0.620
	2021	0.549	0.533	0.538	0.563	0.526	0.488	0.518	0.494	0.531	0.564	0.539	0.562
	2022	0.572	0.515	0.535	0.575	0.537	0.513	0.534	0.508	0.523	0.501	0.515	0.503
	2023	0.558	0.524	0.522	0.592	0.544	0.540	0.543	0.547	0.601	0.621	0.533	0.536
	2024	0.525	0.535	0.588	0.556	0.524	0.512	0.505	0.499	0.539	0.523	0.492	0.537
Sulfur Dioksida (SO ₂) Sulphur Dioxide (ppm)	2020	0.0010	0.0010	0.0009	0.0009	0.0009	0.0010	0.0010	0.0011	0.0011	0.0011	0.0011	0.0012
	2021	0.0011	0.0012	0.0011	0.0011	0.0010	0.0011	0.0011	0.0011	0.0011	0.0011	0.0012	0.0012
	2022	0.0012	0.0011	0.0012	0.0012	0.0011	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0013
	2023	0.0015	0.0014	0.0013	0.0012	0.0013	0.0014	0.0013	0.0013	0.0015	0.0014	0.0014	0.0014
	2024	0.0013	0.0011	0.0015	0.0015	0.0015	0.0019	0.0012	0.0012	0.0015	0.0012	0.0011	0.0015
Nitrogen Dioksida (NO ₂) Nitrogen Dioxide (ppm)	2020	0.0059	0.0057	0.0051	0.0032	0.0047	0.0061	0.0065	0.0064	0.0064	0.0066	0.0061	0.0065
	2021	0.0054	0.0052	0.0062	0.0069	0.0059	0.0046	0.0048	0.0049	0.0058	0.0063	0.0063	0.0060
	2022	0.0061	0.0052	0.0058	0.0068	0.0065	0.0064	0.0065	0.0067	0.0067	0.0063	0.0066	0.0062
	2023	0.0060	0.0057	0.0060	0.0068	0.0068	0.0068	0.0067	0.0068	0.0068	0.0071	0.0067	0.0059
	2024	0.0058	0.0060	0.0063	0.0060	0.0065	0.0065	0.0058	0.0060	0.0058	0.0062	0.0067	0.0067

Sumber: Jabatan Alam Sekitar
Source: Department of Environment

Jadual 1.25: Purata tahunan kepekatan berdasarkan jenis bahan pencemar di udara mengikut stesen, Malaysia, 2020-2024

Table 1.25: Annually average concentration based on the type of pollutants in the air by station, Malaysia, 2020-2024

Negeri / Stesen State / Station	Tahun Year	Habuk Halus (PM _{2.5}) Particulate Matter (µg/m ³)	Habuk Halus (PM ₁₀) Particulate Matter (µg/m ³)	Permukaan Bumi (O ₃) Ground Level Ozone (ppm)	Karbon Monoksida (CO) Carbon Monoxide (ppm)	Sulfur Dioksida (SO ₂) Sulphur Dioxide (ppm)	Nitrogen Dioksida (NO ₂) Nitrogen Dioxide (ppm)
Johor							
Batu Pahat	2020	10.65 ^f	16.93 ^f	0.016	0.521 ^f	0.0017 ^f	0.0045
	2021	12.72 ^f	18.77 ^f	0.018	0.520 ^f	0.0016	0.0045
	2022	10.75 ^f	16.06 ^f	0.017	0.463 ^f	0.0016	0.0044
	2023	14.54 ^f	19.30 ^f	0.019	0.443	0.0014	0.0044
	2024	14.97	22.16	0.019	0.455	0.0015	0.0042
Kluang	2020	8.65 ^f	14.00 ^f	-	-	-	-
	2021	10.62 ^f	16.71 ^f	-	-	-	-
	2022	10.05 ^f	15.32 ^r	-	-	-	-
	2023	14.24 ^f	20.64 ^f	-	-	-	-
	2024	13.7	20.58	-	-	-	-
Kota Tinggi	2020	8.27 ^f	15.15 ^f	0.018	0.458 ^f	0.0011	0.003
	2021	10.17 ^f	15.71 ^f	0.021	0.386	0.0012	0.0033
	2022	9.36 ^f	13.53 ^f	0.019	0.352	0.0013	0.0041
	2023	12.75 ^f	19.24 ^f	0.022	0.533	0.0014	0.0035
	2024	10.45	17.11	0.022	0.455	0.0016	0.0038
Larkin	2020	14.79	22.98	0.014	0.363	0.0018	0.0089
	2021	16.59 ^f	24.26 ^f	0.016	0.429	0.0019	0.0097
	2022	16.98 ^f	25.20 ^f	0.013	0.647 ^f	0.002	0.0112 ^f
	2023	21.42 ^f	33.47 ^f	0.015	0.667	0.0026	0.0125
	2024	17.1	26.13	0.014	0.625	0.0025	0.0118
Pasir Gudang	2020	12.69 ^f	20.62 ^f	0.013	0.579	0.0011	0.0094
	2021	13.73 ^f	21.15 ^f	0.013	0.571	0.0014	0.0104
	2022	14.63 ^f	22.73 ^f	0.011	0.525 ^f	0.0012	0.0122
	2023	18.51 ^f	27.52 ^f	0.014	0.66	0.0013	0.0113
	2024	14.8	23.21	0.013	0.673	0.0018	0.0109
Pengerang	2020	9.16 ^f	14.41 ^f	-	-	0.0013	0.0038
	2021	11.54 ^f	17.57 ^f	-	-	0.0014	0.0035
	2022	11.69	15.96	-	-	0.0012	0.0045
	2023	11.66 ^f	18.51 ^f	-	-	0.001	0.0036
	2024	11.22	19.24	-	-	0.001	0.0035
Segamat	2020	12.97	19.13 ^f	0.015	0.562	0.0017	0.0046 ^f
	2021	13.33 ^f	18.85 ^f	0.016	0.605	0.0021	0.0048 ^f
	2022	14.42 ^f	19.46 ^f	0.014	0.567	0.002	0.0053
	2023	17.00 ^f	23.31 ^f	0.013	0.587	0.0019	0.006
	2024	12.6	17.62	0.015	0.709	0.0021	0.0067
Tangkak	2020	12.36 ^f	20.71 ^f	0.014	0.482 ^f	0.0011	0.0039
	2021	13.99 ^f	23.45 ^f	0.016	0.601 ^f	0.0014	0.0045
	2022	13.39 ^f	20.09 ^f	0.015	0.540 ^f	0.0015	0.0055
	2023	16.69 ^f	25.22 ^f	0.012	0.639	0.0016	0.0057
	2024	14.45	22.17	0.01	0.59	0.002	0.0053

Jadual 1.25: Purata tahunan kepekatan berdasarkan jenis bahan pencemar di udara mengikut stesen, Malaysia, 2020-2024 (samb.)

Table 1.25: Annually average concentration based on the type of pollutants in the air by station, Malaysia, 2020-2024 (cont'd)

Negeri / Stesen State / Station	Tahun Year	Habuk Halus (PM _{2.5}) Particulate Matter (µg/m ³)	Habuk Halus (PM ₁₀) Particulate Matter (µg/m ³)	Permukaan Bumi (O ₃) Ground Level Ozone (ppm)	Karbon Monoksida (CO) Carbon Monoxide (ppm)	Sulfur Dioksida (SO ₂) Sulphur Dioxide (ppm)	Nitrogen Dioksida (NO ₂) Nitrogen Dioxide (ppm)
Kedah							
Alor Setar	2020	12.24 ^f	17.89	0.021	0.438 ^f	0.0008	0.0042
	2021	12.07 ^f	18.79 ^f	0.02	0.421 ^f	0.0009	0.0043
	2022	10.85 ^f	17.98 ^f	0.019	0.444 ^f	0.001	0.0048
	2023	13.00 ^f	19.74 ^f	0.02	0.469	0.0012	0.0047
	2024	17.19	20.93	0.022	0.411	0.0013	0.0044
Kulim	2020	13.15 ^f	17.28	-	-	0.001	0.0063
	2021	11.81 ^f	14.89 ^f	-	-	0.001	0.0058
	2022	12.90 ^f	20.62 ^f	-	-	0.001	0.0081 ^f
	2023	15.68 ^f	23.84 ^f	-	-	0.0013	0.0095
	2024	15.14	25.14	-	-	0.0012	0.0083
Langkawi	2020	9.9	17.33 ^f	0.018	0.374	0.001	0.0032
	2021	9.22 ^f	17.42 ^f	0.018	0.4	0.001	0.0027
	2022	8.2	16.43 ^f	0.016	0.451 ^f	0.001	0.0032
	2023	10.31 ^f	19.38 ^f	0.017	0.474	0.001	0.0035
	2024	10.79	19.61	0.018	0.499	0.0015	0.0031
Sungai Petani	2020	13.75 ^f	20.65 ^f	0.019	0.517 ^f	0.0011	0.0065
	2021	14.67 ^f	21.78 ^f	0.018	0.594 ^f	0.0011	0.0066
	2022	13.41 ^f	20.69 ^f	0.016	0.605	0.0010 ^f	0.0079
	2023	13.63 ^f	22.43 ^f	0.017	0.67	0.0012	0.0073
	2024	14.53	21.47	0.017	0.627	0.0015	0.007
Kelantan							
Kota Bharu	2020	14.53	21.98	0.012	0.456 ^f	0.0009 ^f	0.0032
	2021	15.56 ^f	27.15 ^f	0.014	0.365 ^f	0.0008	0.0028
	2022	14.78 ^f	22.32 ^f	0.013 ^f	0.584 ^f	0.0010	0.0037
	2023	17.07 ^f	26.18 ^f	0.015	0.711	0.0013	0.0036
	2024	17.11	25.46	0.016	0.763	0.0016	0.0037
Tanah Merah	2020	15.29 ^f	28.32 ^f	0.01	0.599 ^f	0.0008	0.0046
	2021	14.79 ^f	25.33 ^f	0.011	0.651 ^f	0.0009	0.0051
	2022	13.38 ^f	24.12 ^f	0.010 ^f	0.665 ^f	0.0010	0.0056
	2023	16.83	28.35	0.012	0.867	0.0011	0.0060
	2024	17.32	27.92	0.011	0.827	0.0011	0.0058
Melaka							
Alor Gajah	2020	12.49 ^f	17.33 ^f	-	-	-	-
	2021	14.26 ^f	20.64 ^f	-	-	-	-
	2022	13.09	17.81 ^f	-	-	-	-
	2023	16.29 ^f	21.55 ^f	-	-	-	-
	2024	15.52	21.81	-	-	-	-
Bandaraya Melaka	2020	13.20 ^f	19.23 ^f	0.023 ^f	0.529 ^f	0.0016	0.0058
	2021	14.17	20.79 ^f	0.022	0.547 ^f	0.0019	0.0056 ^f
	2022	13.83 ^f	19.74 ^f	0.019	0.633 ^f	0.0022	0.0065
	2023	16.83 ^f	23.94 ^f	0.021	0.758	0.0023	0.0058 ^f
	2024	15.68	22.10	0.020	0.501	0.0018	0.0058

Jadual 1.25: Purata tahunan kepekatan berdasarkan jenis bahan pencemar di udara mengikut stesen, Malaysia, 2020-2024 (samb.)

Table 1.25: Annually average concentration based on the type of pollutants in the air by station, Malaysia, 2020-2024 (cont'd)

Negeri / Stesen State / Station	Tahun Year	Habuk Halus (PM _{2.5}) Particulate Matter (µg/m ³)	Habuk Halus (PM ₁₀) Particulate Matter (µg/m ³)	Permukaan Bumi (O ₃) Ground Level Ozone (ppm)	Karbon Monoksida (CO) Carbon Monoxide (ppm)	Sulfur Dioksida (SO ₂) Sulphur Dioxide (ppm)	Nitrogen Dioksida (NO ₂) Nitrogen Dioxide (ppm)
Melaka							
Bukit Rambai	2020	14.37 ^f	20.64 ^f	0.020	0.720 ^f	0.0013	0.0059
	2021	18.49	24.29 ^f	0.020	0.646 ^f	0.0015	0.0061
	2022	16.02 ^f	22.66 ^f	0.018	0.631 ^f	0.0015	0.0062
	2023	20.22 ^f	27.32 ^f	0.021	0.639	0.0024	0.0067
	2024	18.64	25.94	0.017	0.441	0.0046	0.0065
Negeri Sembilan							
Nilai	2020	18.91 ^f	27.47 ^f	0.008	0.527	0.0010	0.0107
	2021	19.00 ^f	29.30 ^f	0.007	0.502	0.0011	0.0105
	2022	18.15 ^f	27.58 ^f	0.010	0.601 ^f	0.0015	0.0105
	2023	22.38 ^f	36.59 ^f	0.016	0.569 ^f	0.0019	0.0130 ^f
	2024	20.13	32.52	0.015	0.555	0.0032	0.0120
Port Dickson	2020	13.08 ^f	18.57 ^f	0.019	0.454	0.0015	0.0048 ^f
	2021	14.94 ^f	20.46 ^f	0.025	0.470	0.0013	0.0055
	2022	14.28	20.49 ^f	0.027	0.530	0.0012	0.0058
	2023	17.60 ^f	23.67 ^f	0.027	0.589 ^f	0.0020	0.0063
	2024	15.02	20.10	0.024	0.539	0.0018	0.0059
Seremban	2020	12.67 ^f	18.38 ^f	0.019	0.561	0.0019	0.0056 ^f
	2021	13.05 ^f	18.70 ^f	0.021	0.603	0.0020	0.0067
	2022	19.97 ^f	26.78	0.02	0.610 ^f	0.0020	0.0067
	2023	20.22 ^f	29.14 ^f	0.018	0.591	0.0029 ^f	0.0066
	2024	14.60	23.85	0.016	0.489	0.0021	0.0069
Pahang							
Balok Baru	2020	11.01 ^f	21.49 ^f	-	-	0.0020	0.0047
	2021	12.05 ^f	26.14 ^f	-	-	0.0014	0.0047
	2022	11.44 ^f	24.87	-	-	0.0021 ^f	0.0050
	2023	14.17 ^f	29.84 ^f	-	-	0.0024 ^f	0.0049
	2024	13.87	27.76	-	-	0.0020	0.0055
Jerantut	2020	12.31 ^f	19.19 ^f	0.015	0.341	0.0008	0.0024
	2021	12.65 ^f	18.96 ^f	0.016	0.348	0.0008	0.0022
	2022	10.77 ^f	17.50 ^f	0.015	0.368	0.0011	0.0026
	2023	13.69 ^r	21.96 ^f	0.016	0.432	0.0010	0.0028
	2024	11.63	17.99	0.016	0.480	0.0015	0.0025
Kuantan	2020	10.01	16.84 ^f	0.019	0.420	0.0010	0.0046
	2021	10.36 ^f	16.47 ^f	0.021	0.400	0.0010	0.0044
	2022	9.50 ^f	15.45 ^f	0.019	0.456	0.0014 ^f	0.0055
	2023	14.31 ^f	21.83	0.021	0.413	0.0014	0.0048 ^f
	2024	12.28	19.95	0.020	0.300	0.0017	0.0049
Rompin	2020	11.95 ^f	22.35 ^f	-	-	-	-
	2021	19.31 ^f	26.74 ^f	-	-	-	-
	2022	9.68 ^f	17.24 ^f	-	-	-	-
	2023	12.07 ^f	21.18 ^f	-	-	-	-
	2024	14.54	22.36	-	-	-	-

Jadual 1.25: Purata tahunan kepekatan berdasarkan jenis bahan pencemar di udara mengikut stesen, Malaysia, 2020-2024 (samb.)

Table 1.25: Annually average concentration based on the type of pollutants in the air by station, Malaysia, 2020-2024 (cont'd)

Negeri / Stesen State / Station	Tahun Year	Habuk Halus (PM _{2.5}) Particulate Matter (µg/m ³)	Habuk Halus (PM ₁₀) Particulate Matter (µg/m ³)	Permukaan Bumi (O ₃) Ground Level Ozone (ppm)	Karbon Monoksida (CO) Carbon Monoxide (ppm)	Sulfur Dioksida (SO ₂) Sulphur Dioxide (ppm)	Nitrogen Dioksida (NO ₂) Nitrogen Dioxide (ppm)
Pahang							
Temerloh	2020	13.90 ^f	22.03 ^f	0.015	0.431 ^f	0.0008	0.0039
	2021	13.82 ^f	21.95 ^f	0.014	0.411	0.0009	0.0038
	2022	11.67 ^f	17.56 ^f	0.012	0.493 ^f	0.0011	0.0045
	2023	14.18 ^f	26.14 ^f	0.014	0.495 ^f	0.0010	0.0050
	2024	13.23	21.24	0.013	0.494	0.0012	0.0038
Perak							
Pegoh, Ipoh	2020	15.01	21.50 ^f	0.019 ^f	0.454	0.0007	0.0073
	2021	15.13 ^f	24.03 ^f	0.015	0.524	0.0008	0.0074
	2022	14.35 ^f	23.87	0.011	0.493	0.0010	0.0072
	2023	14.72 ^f	25.83	0.009 ^f	0.508	0.0010 ^f	0.0059
	2024	15.64	25.56	0.012	0.476	0.0009	0.0059
Seri Manjung	2020	15.48	23.66	-	-	-	-
	2021	14.08 ^f	22.37 ^f	-	-	-	-
	2022	12.66 ^f	19.80 ^f	-	-	-	-
	2023	16.77 ^f	24.16 ^f	-	-	-	-
	2024	16.78	23.64	-	-	-	-
Taiping	2020	14.75 ^f	24.38 ^f	0.017	0.271	0.0009	0.0069
	2021	13.84 ^f	22.85 ^f	0.016	0.303 ^f	0.0010	0.0075
	2022	11.90 ^f	20.48 ^f	0.013	0.279 ^f	0.0009	0.0078
	2023	15.08	25.42	0.016	0.271	0.0011	0.0075
	2024	16.09	27.31	0.019	0.288	0.0011	0.0071
Tanjung Malim	2020	7.52 ^f	11.21	0.018	0.495	0.0008	0.0049
	2021	9.30	14.36 ^f	0.017	0.497 ^f	0.0010 ^f	0.0044
	2022	10.84 ^f	16.43 ^f	0.017	0.503	0.0011	0.0057
	2023	12.31 ^f	19.92 ^f	0.018	0.507	0.0010	0.0060
	2024	12.63	20.11	0.021	0.452	0.0010	0.0059
Tasek, Ipoh	2020	15.59 ^f	23.51 ^f	0.02	0.552	0.0010	0.0079
	2021	16.48 ^f	26.22 ^f	0.018	0.542	0.0010	0.0070
	2022	15.03	24.27 ^f	0.016	0.543 ^f	0.0012	0.0079 ^f
	2023	17.60 ^f	26.66 ^f	0.018	0.583	0.0011	0.0077
	2024	17.75	30.59	0.019	0.579	0.0012	0.0080
Perlis							
Kangar	2020	11.42	18.41 ^f	0.022	0.454	0.0010	0.0027
	2021	10.98 ^f	18.23 ^f	0.021	0.400	0.0012	0.0025
	2022	9.87 ^f	16.50 ^f	0.020	0.414	0.0011	0.0031
	2023	11.81 ^f	19.67 ^f	0.022	0.501 ^f	0.0012	0.0031
	2024	12.16	19.95	0.023	0.526	0.0013	0.0030
Pulau Pinang							
Balik Pulau	2020	15.74 ^f	23.03 ^f	0.024	0.499	0.0009	0.0034
	2021	13.46 ^f	20.82 ^f	0.023	0.471 ^f	0.0009	0.0032
	2022	11.86 ^f	18.31	0.019 ^f	0.447 ^f	0.0011 ^f	0.0036
	2023	13.38 ^f	19.53 ^f	0.021	0.461 ^f	0.0009	0.0040
	2024	13.64	19.74	0.023	0.431	0.0009	0.0040

Jadual 1.25: Purata tahunan kepekatan berdasarkan jenis bahan pencemar di udara mengikut stesen, Malaysia, 2020-2024 (samb.)

Table 1.25: Annually average concentration based on the type of pollutants in the air by station, Malaysia, 2020-2024 (cont'd)

Negeri / Stesen State / Station	Tahun Year	Habuk Halus (PM _{2.5}) Particulate Matter (µg/m ³)	Habuk Halus (PM ₁₀) Particulate Matter (µg/m ³)	Permukaan Bumi (O ₃) Ground Level Ozone (ppm)	Karbon Monoksida (CO) Carbon Monoxide (ppm)	Sulfur Dioksida (SO ₂) Sulphur Dioxide (ppm)	Nitrogen Dioksida (NO ₂) Nitrogen Dioxide (ppm)
Pulau Pinang							
Perai	2020	15.43 ^f	23.28 ^r	0.013	0.669 ^r	0.0006	0.0072
	2021	14.60 ^f	21.86 ^r	0.008	0.639 ^r	0.0007	0.0066
	2022	14.27 ^f	22.00 ^r	0.012 ^f	0.587	0.0010	0.0076
	2023	17.41	24.95 ^r	0.015	0.399	0.0011	0.0077 ^r
	2024	15.90	21.23	0.007	0.598	0.0010	0.0072
Seberang Jaya	2020	17.45 ^f	25.26	0.017	0.693 ^r	0.0010	0.0116
	2021	17.33 ^f	24.22 ^r	0.015	0.655 ^r	0.0010 ^f	0.0122
	2022	16.40 ^f	23.32 ^r	0.010	0.775 ^r	0.0011	0.0136
	2023	19.65 ^f	28.28 ^r	0.015	0.721 ^r	0.0010	0.0133
	2024	18.48	27.16	0.017	0.631	0.0011	0.0127
USM	2020	14.07 ^f	20.08 ^r	0.025	0.558	0.0011	0.0062 ^r
	2021	14.00 ^f	19.87 ^r	0.024	0.521 ^r	0.0010	0.0058
	2022	13.05 ^f	18.97 ^r	0.018	0.472	0.0009	0.0074
	2023	15.29 ^f	22.07 ^r	0.023	0.539 ^r	0.0011	0.0070
	2024	14.40	20.54	0.024	0.479	0.0010	0.0068
Sabah							
Keningau	2020	9.72 ^f	16.62 ^r	0.009	0.626 ^r	0.0012	0.0025
	2021	10.12 ^f	18.84 ^r	0.009	0.594 ^r	0.0014	0.0026 ^r
	2022	8.36 ^f	16.71 ^r	0.009	0.518 ^r	0.0014	0.0023
	2023	10.49 ^f	17.54 ^r	0.011	0.499 ^r	0.0014	0.0026
	2024	10.34	18.74	0.010	0.346	0.0014	0.0028
Kimanis	2020	7.46 ^f	15.64 ^r	-	-	0.0007	0.0015
	2021	5.41 ^f	11.84 ^r	-	-	0.0008 ^f	0.0014
	2022	4.48	11.53 ^r	-	-	0.0007	0.0019 ^r
	2023	6.34	13.67	-	-	0.0006	0.0018
	2024	10.64	17.00	-	-	0.0007	0.0018
Kota Kinabalu	2020	7.96 ^f	16.85 ^r	0.013	0.400 ^r	0.001	0.0024
	2021	7.67	19.55 ^r	0.012	0.345 ^r	0.0011	0.0027
	2022	7.76 ^f	15.77 ^r	0.010	0.274	0.0009	0.0029
	2023	10.11 ^f	22.82 ^r	0.010	0.360 ^r	0.0010	0.0036
	2024	10.84	22.50	0.010	0.559	0.0012	0.0034
Sandakan	2020	9.28 ^f	15.39 ^r	0.014	0.531	0.0007	0.0035
	2021	7.77 ^f	14.20 ^r	0.014	0.500 ^r	0.0008	0.0036 ^r
	2022	7.80 ^f	12.24	0.013	0.591 ^r	0.0008	0.0044
	2023	9.16	14.68	0.016	0.517 ^r	0.0009	0.0043
	2024	9.42	16.48	0.015	0.532	0.0009	0.0044
Tawau	2020	6.56	16.12 ^r	0.011	0.626 ^r	0.0006	0.0043
	2021	7.08	14.67	0.010	0.524	0.0008	0.0047
	2022	10.64 ^f	21.72	0.009	0.519	0.0011	0.0051 ^r
	2023	12.49 ^f	23.20 ^r	0.012	0.485	0.0014	0.0055
	2024	12.51	24.15	0.011	0.508	0.0011	0.0051

Jadual 1.25: Purata tahunan kepekatan berdasarkan jenis bahan pencemar di udara mengikut stesen, Malaysia, 2020-2024 (samb.)

Table 1.25: Annually average concentration based on the type of pollutants in the air by station, Malaysia, 2020-2024 (cont'd)

Negeri / Stesen State / Station	Tahun Year	Habuk Halus (PM _{2.5}) Particulate Matter (µg/m ³)	Habuk Halus (PM ₁₀) Particulate Matter (µg/m ³)	Permukaan Bumi (O ₃) Ground Level Ozone (ppm)	Karbon Monoksida (CO) Carbon Monoxide (ppm)	Sulfur Dioksida (SO ₂) Sulphur Dioxide (ppm)	Nitrogen Dioksida (NO ₂) Nitrogen Dioxide (ppm)
Sarawak							
Bintulu	2020	11.20 ^f	19.82	0.013	0.407	0.0004	0.0039 ^f
	2021	12.43	21.20 ^f	0.013	0.403 ^f	0.0004	0.0044
	2022	12.69 ^f	20.47 ^f	0.012	0.426	0.0005	0.0043
	2023	16.39	25.16 ^r	0.008	0.494 ^f	0.0006	0.0045
	2024	12.75	19.66	0.008	0.495	0.0006	0.0042
ILP Miri	2020	11.71 ^f	18.64 ^f	-	-	-	-
	2021	8.89 ^f	15.52	-	-	-	-
	2022	8.00 ^f	14.34	-	-	-	-
	2023	10.02 ^f	16.81 ^f	-	-	-	-
	2024	9.17	16.59	-	-	-	-
Kapit	2020	6.31	13.15	-	-	-	-
	2021	7.05 ^f	13.78 ^f	-	-	-	-
	2022	8.10	15.29	-	-	-	-
	2023	9.52 ^f	17.63 ^f	-	-	-	-
	2024	6.65	14.23	-	-	-	-
Kuching	2020	8.99	15.81	0.011	0.615	0.0006	0.0041
	2021	8.46 ^f	14.69 ^f	0.012	0.457 ^f	0.0012	0.0041
	2022	7.25 ^f	15.37 ^f	0.012	0.345 ^f	0.0010	0.0060
	2023	14.56 ^f	21.94 ^f	0.013	0.373	0.0014	0.0058
	2024	10.16	18.29	0.011	0.261	0.0014	0.0057
Limbang	2020	6.55 ^f	13.81 ^f	-	-	-	-
	2021	7.54	15.47 ^f	-	-	-	-
	2022	6.70	14.14	-	-	-	-
	2023	9.95 ^f	18.40 ^f	-	-	-	-
	2024	8.31	15.78	-	-	-	-
Miri	2020	12.56 ^f	19.77 ^f	0.016	0.559	0.0006	0.0029
	2021	12.12 ^f	18.64 ^f	0.015	0.479 ^f	0.0011	0.0032
	2022	9.70 ^f	15.89	0.014	0.496	0.0008	0.0033
	2023	11.97 ^f	18.28 ^r	0.014	0.566	0.0010	0.0033
	2024	10.89	18.76	0.014	0.466	0.0010	0.0032
Mukah	2020	6.52	16.15	-	-	-	-
	2021	7.39 ^f	17.78 ^f	-	-	-	-
	2022	7.31	17.72 ^f	-	-	-	-
	2023	10.80 ^f	21.37 ^f	-	-	-	-
	2024	8.54	19.41	-	-	-	-
Samalaju	2020	9.51 ^f	19.13 ^f	-	-	0.0006	0.0019
	2021	9.86 ^f	20.15 ^f	-	-	0.0006	0.0026
	2022	11.26 ^f	20.95 ^f	-	-	0.0008	0.0025 ^f
	2023	15.40 ^f	24.29 ^f	-	-	0.0010	0.0026
	2024	12.75	22.99	-	-	0.0011	0.0026

Jadual 1.25: Purata tahunan kepekatan berdasarkan jenis bahan pencemar di udara mengikut stesen, Malaysia, 2020-2024 (samb.)

Table 1.25: *Annually average concentration based on the type of pollutants in the air by station, Malaysia, 2020-2024 (cont'd)*

Negeri / Stesen State / Station	Tahun Year	Habuk Halus (PM _{2.5}) Particulate Matter (µg/m ³)	Habuk Halus (PM ₁₀) Particulate Matter (µg/m ³)	Permukaan Bumi (O ₃) Ground Level Ozone (ppm)	Karbon Monoksida (CO) Carbon Monoxide (ppm)	Sulfur Dioksida (SO ₂) Sulphur Dioxide (ppm)	Nitrogen Dioksida (NO ₂) Nitrogen Dioxide (ppm)
Sarawak							
Samarahan	2020	7.02	14.07	-	-	-	-
	2021	8.18	14.94	-	-	-	-
	2022	8.39 ^f	15.54 ^f	-	-	-	-
	2023	13.16	20.80	-	-	-	-
	2024	9.84	17.42	-	-	-	-
Sarikei	2020	7.11	14.21	-	-	-	-
	2021	8.89 ^f	15.28 ^f	-	-	-	-
	2022	8.63 ^f	15.18 ^f	-	-	-	-
	2023	9.29 ^f	16.01 ^f	-	-	-	-
	2024	8.20	15.15	-	-	-	-
Sibu	2020	8.27	14.43 ^f	0.010	0.430 ^f	0.0011	0.0039
	2021	8.02 ^f	14.53 ^f	0.010	0.405 ^f	0.0007	0.0036
	2022	7.73 ^f	14.16 ^f	0.010	0.430	0.0006	0.0041
	2023	9.90 ^f	16.49 ^f	0.010	0.425	0.0006	0.0043
	2024	9.14	16.43	0.009	0.462	0.0006	0.0034
Sri Aman	2020	7.46 ^f	14.71 ^f	-	-	-	-
	2021	7.82 ^f	15.09	-	-	-	-
	2022	7.42	14.74	-	-	-	-
	2023	10.56	18.54	-	-	-	-
	2024	7.68	14.85	-	-	-	-
Selangor							
Banting	2020	17.05 ^f	24.61 ^f	0.018	0.615 ^f	0.0014	0.0086 ^f
	2021	19.27 ^f	28.53 ^f	0.018	0.559 ^f	0.0014	0.0079
	2022	17.70 ^f	26.90	0.020	0.441	0.0012	0.0096
	2023	23.87 ^f	34.17 ^f	0.020	0.379	0.0016	0.0107
	2024	29.21	38.90	0.019	0.391	0.0022	0.0093
Klang	2020	23.23 ^f	33.78	0.016	0.787	0.0014	0.0150
	2021	26.28 ^f	34.24	0.016	0.776 ^f	0.0015	0.0148
	2022	20.86	28.78 ^f	0.015	0.704 ^f	0.0015	0.0156
	2023	25.04 ^f	35.46 ^f	0.016	0.867 ^f	0.0015	0.0164
	2024	22.57	30.99	0.016	0.872	0.0022	0.0183
Kuala Selangor	2020	15.23 ^f	20.71 ^f	-	-	-	-
	2021	16.89 ^f	24.33 ^f	-	-	-	-
	2022	16.74 ^f	23.64 ^f	-	-	-	-
	2023	18.33 ^f	32.76 ^f	-	-	-	-
	2024	14.63	23.72	-	-	-	-
Petaling Jaya	2020	19.95	27.56 ^f	0.009	1.025	0.0009	0.0193 ^f
	2021	23.71 ^f	32.30 ^f	0.005	0.818 ^f	0.0012	0.0181
	2022	20.67 ^f	29.83 ^f	0.014	0.643 ^f	0.0015	0.0141
	2023	21.44 ^f	29.91 ^f	0.016	0.971 ^f	0.0014	0.0165
	2024	19.28	24.93	0.017	0.917	0.0017	0.0135

Jadual 1.25: Purata tahunan kepekatan berdasarkan jenis bahan pencemar di udara mengikut stesen, Malaysia, 2020-2024 (samb.)

Table 1.25: Annually average concentration based on the type of pollutants in the air by station, Malaysia, 2020-2024 (cont'd)

Negeri / Stesen State / Station	Tahun Year	Habuk Halus (PM _{2.5}) Particulate Matter (µg/m ³)	Habuk Halus (PM ₁₀) Particulate Matter (µg/m ³)	Permukaan Bumi (O ₃) Ground Level Ozone (ppm)	Karbon Monoksida (CO) Carbon Monoxide (ppm)	Sulfur Dioksida (SO ₂) Sulphur Dioxide (ppm)	Nitrogen Dioksida (NO ₂) Nitrogen Dioxide (ppm)
Selangor							
Shah Alam	2020	18.07 ^f	25.79 ^f	0.020	0.735	0.0012	0.0135
	2021	20.65 ^f	28.49 ^f	0.020	0.673	0.0010	0.0133
	2022	20.64 ^f	32.26 ^f	0.017	0.541 ^f	0.0012	0.0141
	2023	22.07 ^f	26.67 ^f	0.018	0.725 ^f	0.0014	0.0149
	2024	19.10	25.83	0.015	0.596	0.0014	0.0137
Terengganu							
Besut	2020	10.81	18.37 ^f	0.015	0.437 ^f	0.0009 ^f	0.0019 ^f
	2021	11.16 ^f	18.88 ^f	0.014	0.471	0.0007	0.0016
	2022	11.07	17.82 ^f	0.015	0.393 ^f	0.0010	0.0021
	2023	12.96 ^f	21.72 ^f	0.016	0.355 ^f	0.0010 ^f	0.0025
	2024	12.21	19.41	0.017	0.505	0.0010	0.0022
Kemaman	2020	11.65	19.25 ^f	-	-	0.0009	0.0028
	2021	10.85 ^f	18.16 ^f	-	-	0.0008	0.0026
	2022	10.79 ^f	20.24 ^f	-	-	0.0011	0.0031
	2023	14.45 ^f	23.80 ^f	-	-	0.0013 ^f	0.0034
	2024	13.87	22.81	-	-	0.0013	0.0032
Kuala Terengganu	2020	14.41 ^f	23.30	0.014	0.507	0.0011	0.0043
	2021	15.63 ^f	24.43 ^f	0.014	0.536	0.0010	0.0041
	2022	15.09 ^f	22.34 ^f	0.013	0.610	0.0013	0.0046
	2023	17.34 ^f	26.30 ^f	0.015	0.566	0.0017	0.0050
	2024	15.82	24.93	0.012	0.329	0.0024	0.0050
Paka	2020	8.71 ^f	16.58 ^f	-	-	0.0009	0.0019
	2021	9.77 ^f	18.65 ^f	-	-	0.0010	0.0023
	2022	9.21 ^f	18.45 ^f	-	-	0.0007	0.0035 ^f
	2023	14.04	21.33	-	-	0.0011	0.0024
	2024	12.90	21.01	-	-	0.0011	0.0021
Wilayah Persekutuan							
Batu Muda, Kuala Lumpur	2020	17.50 ^f	28.26 ^f	0.016	0.938	0.0008	0.0129 ^f
	2021	15.94 ^f	21.80 ^f	0.017	0.753 ^f	0.0009	0.0115 ^f
	2022	16.84 ^f	28.86 ^f	0.012	0.703 ^f	0.0013	0.0105
	2023	21.66 ^f	30.72	0.013 ^f	0.503 ^f	0.0018	0.0110 ^r
	2024	17.41	23.82	0.008	0.472	0.0018	0.0129
Cheras, Kuala Lumpur	2020	15.78 ^f	22.41 ^f	0.019	0.724	0.0008	0.0121
	2021	16.81 ^f	23.97 ^f	0.020	0.849	0.0010	0.0111
	2022	18.16 ^f	23.41 ^f	0.019	0.892	0.0012	0.0133
	2023	22.11	29.26 ^f	0.020 ^f	0.825 ^f	0.0014	0.0124 ^f
	2024	20.71	28.50	0.021	0.720	0.0015	0.0127
Labuan	2020	10.93 ^f	17.84 ^f	0.016	0.592	0.0007	0.0017 ^f
	2021	11.52 ^f	19.40 ^f	0.015	0.619 ^f	0.0014	0.0017
	2022	9.74 ^f	16.43 ^f	0.016	0.478 ^f	0.0010	0.0020
	2023	10.58 ^f	17.96 ^f	0.017	0.341 ^f	0.0010	0.0023
	2024	10.80	18.99	0.018	0.302	0.0015	0.0022

Jadual 1.25: Purata tahunan kepekatan berdasarkan jenis bahan pencemar di udara mengikut stesen, Malaysia, 2020-2024 (samb.)

Table 1.25: Annually average concentration based on the type of pollutants in the air by station, Malaysia, 2020-2024 (cont'd)

Negeri / Stesen State / Station	Tahun Year	Habuk Halus (PM _{2.5}) Particulate Matter (µg/m ³)	Habuk Halus (PM ₁₀) Particulate Matter (µg/m ³)	Permukaan Bumi (O ₃) Ground Level Ozone (ppm)	Karbon Monoksida (CO) Carbon Monoxide (ppm)	Sulfur Dioksida (SO ₂) Sulphur Dioxide (ppm)	Nitrogen Dioksida (NO ₂) Nitrogen Dioxide (ppm)
Wilayah Persekutuan							
Putrajaya	2020	16.62 ^f	24.19 ^f	0.022 ^f	0.537 ^f	0.0012	0.0069
	2021	15.77 ^f	23.02 ^f	0.020	0.772 ^f	0.0011	0.0063
	2022	13.93 ^f	21.14 ^f	0.019	0.586	0.0018	0.0082
	2023	21.12 ^f	30.24 ^f	0.023	0.582 ^f	0.0020	0.0089 ^f
	2024	20.04	26.30	0.021	0.647	0.0022	0.0090

Sumber: Jabatan Alam Sekitar
Source: Department of Environment

Nota: Setiap stesen telah dikelaskan kepada beberapa kategori iaitu industri, urban, rural dan sub-urban. Pengelasan ini menyebabkan terdapat beberapa parameter yang tidak tersedia di stesen-stesen tertentu.

Notes: Each station has been classified into several categories, namely industrial, urban, rural, and suburban. This classification has resulted in some parameters being unavailable at certain stations.

Jadual 1.26: Purata bulanan kepekatan Habuk Halus (PM_{2.5}) di udara, Malaysia, 2020-2024

Table 1.26: Monthly average concentration of Particulate Matter (PM_{2.5}) in the air, Malaysia, 2020-2024

µg/m³

Negeri/ Stesen State/ Station	Tahun Year	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Johor													
Batu Pahat	2020	9.49	9.12	12.80	10.19	10.34	10.55	9.80	14.00	9.88	12.03	9.26	10.30
	2021	8.57	16.67	15.66	14.98	12.02	15.21	16.57	10.16	10.79	13.39	9.78	8.86
	2022	9.15	8.40	10.30	11.24	13.04	9.76	14.38	12.62	12.68	8.96	9.23	9.22
	2023	11.65	7.2	9.35	18.2	12.18	14.6	13.4	14.24	19.39	37.79	9.32	7.22
	2024	8.21	12.37	14.89	15.94	14.70	17.80	20.11	18.92	20.71	13.97	10.01	12.04
Kluang	2020	6.74	6.93	10.42	7.60	8.57	9.36	9.59	11.02	7.71	10.43	6.72	8.67
	2021	6.83	11.83	10.76	12.62	10.83	13.56	13.52	9.17	9.19	12.93	8.26	8.01
	2022	7.77	6.81	9.09	10.08	12.98	10.35	12.63	11.82	10.20	9.17	9.35	10.32
	2023	10.13	7.85	11.46	18.92	13.11	16.72	15.45	15.24	20.09	23.47	10.64	7.80
	2024	8.36	11.41	13.33	14.20	14.75	17.67	26.72	13.41	13.78	13.87	8.49	8.38
Kota Tinggi	2020	6.95	7.15	7.85	7.76	9.39	8.53	7.32	9.58	7.86	12.07	7.51	7.32
	2021	7.75	11.08	9.29	13.15	9.01	13.35	11.75	9.15	9.84	11.77	9.11	6.79
	2022	6.22	4.92	6.74	11.06	11.36	10.77	9.95	10.38	13.02	11.78	8.52	7.61
	2023	7.71	8.19	10.19	16.76	12.33	11.76	12.53	15.88	17.6	23.91	10.44	5.75
	2024	5.91	8.29	9.60	9.18	8.90	10.39	14.22	11.20	13.87	14.04	10.28	9.55
Larkin	2020	12.80	13.38	14.98	13.03	15.03	15.31	14.27	17.19	16.30	16.79	14.95	13.40
	2021	11.45	16.12	16.05	20.77	18.49	19.52	18.01	14.45	14.97	19.85	15.48	13.88
	2022	12.51	13.14	14.53	18.69	18.66	21.09	20.33	21.43	20.64	15.09	14.23	13.39
	2023	16.26	13.41	15.32	27.34	19.69	20.8	20.85	24.1	28.03	37.3	18.83	15.14
	2024	12.63	14.36	15.52	19.23	16.43	17.59	18.85	19.04	19.41	21.13	16.57	14.40
Pasir Gudang	2020	8.54	8.78	11.52	11.23	13.72	14.63	13.97	16.54	14.20	16.18	12.70	10.30
	2021	7.88	13.59	12.53	16.54	15.19	16.37	15.29	12.57	14.15	15.78	14.29	10.65
	2022	10.48	9.71	13.19	18.86	18.28	17.76	16.07	16.46	18.44	14.84	11.36	10.10
	2023	9.94	7.89	12.06	24.51	17.90	19.54	18.69	21.25	30.77	30.93	17.07	11.62
	2024	9.20	12.48	11.96	14.79	15.39	14.58	16.80	16.68	17.93	21.43	14.74	11.64
Pengerang	2020	9.26	7.60	12.67	10.59	9.17	6.99	7.19	10.38	8.26	10.89	7.80	9.09
	2021	9.26	17.99	13.66	12.06	9.23	11.52	11.10	9.45	12.09	12.97	10.54	8.65
	2022	9.87	9.06	9.04	15.04	16.74	13.52	12.85	11.21	13.19	13.77	9.80	6.23
	2023	6.60	7.31	8.77	15.23	10.33	10.77	12.15	16.29	16.38	20.26	9.57	6.32
	2024	6.83	8.57	9.70	10.78	9.90	11.30	14.73	12.99	16.47	12.87	8.85	11.66
Segamat	2020	9.92	10.15	15.95	16.35	13.50	14.05	11.13	14.68	12.30	16.60	10.02	10.94
	2021	8.53	13.72	16.27	16.15	13.50	16.03	16.45	12.52	12.20	15.01	10.19	9.40
	2022	8.55	7.59	12.37	14.43r	15.06	15.71	19.71	16.59	22.99	20.52	11.84	7.65
	2023	9.18	7.85	14.19	28.22	23.35	15.89	17.41	19.01	23.99	27.66	10.34	6.94
	2024	7.43	12.25	15.69	15.13	12.67	14.18	17.81	13.77	12.86	13.16	8.20	8.06
Tangkak	2020	11.86	11.12	15.72	11.31	10.75	12.43	10.87	13.74	12.12	13.78	11.22	13.43
	2021	11.66r	21.01r	18.14r	16.51r	12.20r	14.43r	14.49r	10.17r	11.62r	14.12r	12.56r	10.91r
	2022	11.16	8.36	13.65	13.36	14.30	16.00	16.70	14.08	14.13	13.01	12.49	13.42
	2023	11.77	9.77	13.01	22.25	17.38	18.89	13.75	16.56	22.58	32.21	11.86	10.20
	2024	11.03	14.04	17.13	16.62	11.86	14.73	17.68	15.31	17.88	14.20	10.84	12.07
Kedah													
Alor Setar	2020	11.50	12.30	19.73	10.57	9.46	13.11	12.54	18.55	11.87	7.55	8.89	10.88
	2021	14.50	19.01	14.40	10.35	9.24	11.01	13.69	9.12	15.19	10.85	6.29	11.25
	2022	13.84	10.58	11.16	11.36	9.42	7.90	14.07	13.86	11.82	6.99	8.66	10.60
	2023	13.73	14.53	17.07	20.61	12.07	14.47	11.13	9.96	13.90	12.49	7.53	8.53
	2024	13.07	16.96	24.74	24.62	33.38	26.48	20.33	11.37	9.19	7.99	7.03	11.12

Jadual 1.26: Purata bulanan kepekatan Habuk Halus (PM_{2.5}) di udara, Malaysia, 2020-2024 (samb.)

Table 1.26: Monthly average concentration of Particulate Matter (PM_{2.5}) in the air, Malaysia, 2020-2024 (cont'd)

µg/m³

Negeri/ Stesen State/ Station	Tahun Year	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Kedah													
Kulim	2020	14.73	14.14	19.55	10.25	9.62	14.45	13.06	19.81	12.26	9.34	10.26	10.39
	2021	13.25	18.39	14.97	10.43	10.54	11.21	13.36	8.56	9.23	8.21	9.34	14.22
	2022	18.75	12.68	13.42	12.66	10.83	9.68	15.54	15.90	12.65	10.31	10.24	12.19
	2023	14.33	16.46	17.54	19.66	15.68	19.61	18.51	13.58	16.40	15.70	10.36	10.36
	2024	14.69	17.33	19.05	17.06	17.34	13.74	20.95	14.17	11.78	10.43	10.06	15.13
Langkawi	2020	12.61	12.22	13.09	10.01	8.41	9.87	9.75	11.33	7.33	6.67	8.16	9.39
	2021	13.27	14.56	11.59	8.82	7.17	8.56	10.05	6.66	6.14	7.09	5.74	10.96
	2022	13.52	9.17	10.18	9.55	7.26	5.72	8.89	7.22	5.65	5.00	7.13	9.15
	2023	11.93	12.75	16.00	18.62	8.21	9.13	8.07	6.43	10.36	7.67	6.25	8.35
	2024	12.06	13.34	16.65	14.12	11.80	9.58	15.26	8.83	5.47	5.69	6.45	10.30
Sungai Petani	2020	17.96	14.26	20.56	12.03	10.57	16.12	14.98	21.06	11.47	8.92	8.17	8.89
	2021	14.49	18.68	16.13	12.44	14.81	14.76	18.61	14.04	17.71	12.91	9.28	12.13
	2022	18.44	13.44	13.99	14.59	13.45	11.64	18.27	17.59	11.79	8.57	9.46	9.71
	2023	11.71	12.56	16.08	19.56	12.48	14.78	14.20	12.26	17.27	13.79	9.95	8.96
	2024	12.09	15.35	19.67	16.75	16.84	13.36	23.06	13.69	11.25	10.88	9.17	12.21
Kelantan													
Kota Bharu	2020	14.90	15.07	18.34	15.42	14.13	13.25	15.11	18.79	14.67	12.13	10.88	11.71
	2021	15.06	20.45	13.33	16.24	14.72	15.68	20.67	13.69	16.82	17.64	8.86	13.57
	2022	19.13	11.33	16.07	15.66	17.49	18.50	18.64	16.94	11.00	8.75	10.34	13.54
	2023	16.09	19.12	20.11	28.9	17.45	19.06	17.51	13.09	15.73	18.41	10.18	9.21
	2024	14.35	19.01	17.41	20.40	20.50	17.72	24.98	15.56	14.83	12.73	12.63	15.22
Tanah Merah	2020	19.62	17.85	24.29	18.05	12.75	12.43	14.10	16.84	12.72	11.32	11.08	12.42
	2021	16.34	27.32	16.32	14.28	11.57	11.35	15.59	12.08	13.68	15.05	9.54	14.33
	2022	21.28	13.13	15.96	14.31	14.12	12.71	15.55	12.26	9.44	9.45	9.59	12.71
	2023	14.38	18.17	19.65	28.72	17.31	17.74	25.86	11.28	13.44	14.97	11.29	9.2
	2024	13.04	18.77	22.14	28.39	25.69	18.68	22.31	13.97	13.96	9.84	8.41	12.61
Melaka													
Alor Gajah	2020	9.79	9.13	11.93	10.84	15.96	13.68	12.76	14.89	12.44	17.74	9.72	11.03
	2021	8.67	13.98	13.99	16.98	16.30	18.56	19.66	13.75	13.10	15.39	11.03	9.69
	2022	9.92	8.88	12.85	14.05	15.78	12.43	18.92	16.53	17.35	11.51	9.82	8.98
	2023	10.79	8.55	10.29	20.31	15.25	18.22	17.24	19.33	20.73	34.59	11.57	8.61
	2024	9.12	12.67	17.06	19.49	13.64	19.42	23.15	19.84	16.06	14.88	10.36	10.59
Bandaraya Melaka	2020	11.41	11.20	14.71	12.10	14.56	14.36	13.13	17.25	12.77	13.32	11.20	12.45
	2021	10.08	15.18	14.56	17.86	15.04	17.80	17.73	13.11	12.56	14.05	11.62	10.48
	2022	11.11	10.18	13.56	13.89	16.50	15.70	19.38	15.00	14.91	11.65	12.35	11.78
	2023	13.54	13.43	13.9	21.43	14.49	15.82	16.17	17.23	21.63	29.24	14.26	10.59
	2024	12.78	14.61	18.77	20.36	13.06	17.14	21.22	15.25	15.61	15.19	12.18	12.02
Bukit Rambai	2020	13.56	12.71	15.01	12.41	16.51	15.56	15.91	17.79	13.35	15.92	11.42	12.34
	2021	11.42	17.80	21.24	24.74	19.55	19.76	24.01	20.65	16.02	19.04	14.40	13.23
	2022	12.98	12.00	15.54	17.27	18.95	16.92	22.07	19.01	18.62	14.03	12.71	12.16
	2023	14.95	11.98	14.09	24.16	18.66	21.93	21.61	24.62	24.3	37.84	15.69	12.77
	2024	13.84	17.59	22.95	23.30	16.70	22.21	26.42	21.99	17.43	15.89	12.17	13.25

Jadual 1.26: Purata bulanan kepekatan Habuk Halus (PM_{2.5}) di udara, Malaysia, 2020-2024 (samb.)

Table 1.26: Monthly average concentration of Particulate Matter (PM_{2.5}) in the air, Malaysia, 2020-2024 (cont'd)

µg/m³

Negeri/ Stesen State/ Station	Tahun Year	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Negeri Sembilan													
Nilai	2020	16.75	15.21	19.06	15.80	19.94	21.30	20.24	21.23	18.42	20.30	16.36	22.32
	2021	17.93	22.57	21.47	23.40	20.19	18.25	18.97	15.62	17.56	18.87	17.35	15.85
	2022	15.96	14.47	17.38	23.45	25.90	19.62	24.69	16.76	17.38	14.75	14.36	13.09
	2023	18.49	14.2	19.66	29.36	22.29	23.51	21.82	28.31	30.96	29.15	17.11	13.76
	2024	13.51	16.18	22.69	25.41	18.44	22.93	26.40	21.09	21.96	20.93	15.97	16.07
Port Dickson	2020	14.04	12.53	15.69	12.55	13.71	13.62	12.96	16.36	11.26	11.63	10.71	11.95
	2021	11.59	17.73	17.16	17.02	15.77	15.94	18.11	13.25	13.17	13.53	12.66	13.29
	2022	15.01	13.15	16.46	16.38	16.63	11.98	16.99	14.32	13.71	11.30	12.43	12.97
	2023	16.47	19.57	15.91	21.4	13.2	15.5	15.19	16.03	21.74	28.89	14.78	12.47
	2024	11.25	13.13	18.18	18.74	12.51	14.10	22.20	14.91	16.96	13.75	11.32	13.23
Seremban	2020	13.05	10.65	13.50	11.21	13.47	13.69	12.71	15.60	12.61	13.37	10.19	12.03
	2021	10.82	16.64	16.07	13.94	13.53	13.89	15.05	11.01	10.92	13.59	10.29	10.79
	2022	11.62	14.47	23.79	29.44	23.58	21.93	24.16	18.33	18.45	18.64	19.89	15.36
	2023	23.22	12.39	18.74	33.71	22.15	18	17.71	17.88	27.11	30.26	11.48	9.96
	2024	11.54	14.78	19.37	19.42	11.93	14.36	19.27	14.59	15.41	13.99	9.75	10.80
Pahang													
Balok Baru	2020	10.80	13.06	11.40	9.06	9.50	11.46	10.39	12.64	12.75	13.46	8.74	8.82
	2021	10.28	13.42	12.25	13.01	10.82	12.90	15.10	11.89	11.39	12.41	9.95	11.13
	2022	11.54	11.93	9.75	11.78	12.62	11.72	13.93	10.03	12.19	10.30	11.20	10.31
	2023	13.50	12.06	12.77	17.82	12.11	13.32	13.29	15.10	18.41	20.33	10.66	10.62
	2024	10.81	13.70	17.47	23.41	16.22	11.64	16.45	15.35	12.96	12.59	7.75	8.14
Jerantut	2020	10.34	10.59	14.54	10.99	11.60	13.64	12.80	18.17	14.19	14.82	7.49	8.53
	2021	8.93	14.99	12.60	12.56	12.94	13.59	16.87	13.89	13.10	15.18	8.43	8.70
	2022	11.02	8.10	10.93	10.57	14.30	13.71	17.68	12.48	10.93	6.81	5.80	6.91
	2023	7.06	9.73	11.07	18.88	15.01	15.71	16.92	14.53	19.77	21.26	7.49	6.87
	2024	8.49	13.20	7.66	13.23	12.38	14.11	20.93	12.57	12.40	10.00	7.30	7.30
Kuantan	2020	8.94	10.19	9.96	8.26	9.05	11.25	9.53	12.72	11.50	13.47	6.78	8.47
	2021	8.77	12.80	8.60	10.52	9.40	12.18	14.40	10.77	9.83	11.46	6.91	8.74
	2022	9.88	6.37	8.94	8.81	11.85	12.02	12.90	9.58	11.89	7.53	7.18	7.04
	2023	8.75	9.87	11.44	17.30	15.69	19.63	13.48	17.22	22.00	23.01	7.56	5.79
	2024	9.32	12.45	13.31	12.06	11.17	11.96	19.93	15.62	14.87	11.41	7.04	8.23
Rompin	2020	9.76	10.00	13.61	23.70	8.90	9.91	8.30	10.19	8.73	10.78	6.64	22.83
	2021	24.18	31.76	30.64	24.90	14.40	19.74	26.92	19.50	10.37	12.85	7.53	8.99
	2022	12.54	7.84	8.29	8.10	11.21	10.28	13.23	10.76	12.69	8.04	6.13	7.01
	2023	7.32	6.96	9.31	17.00	12.35	15.46	11.68	12.87	16.32	22.95	7.13	5.48
	2024	8.19	11.27	17.08	32.05	23.19	10.51	16.19	12.40	15.09	11.80	7.74	8.92
Temerloh	2020	14.77	12.75	15.37	12.10	12.68	15.78	14.53	18.19	14.55	16.77	8.87	10.49
	2021	11.29 ^a	17.42	12.79	14.52	13.94	15.67	18.49	14.64	13.24	15.06	9.32	9.50
	2022	11.83	8.38	10.55	10.48	13.88	12.00	19.13	14.17	14.02	8.30	8.17	9.11
	2023	11.07	10.07	11.59	19.18	14.49	14.81	15.54	15.34	18.45	22.73	10.24	6.68
	2024	9.32	15.34	15.51	15.99	13.22	13.61	19.77	14.65	12.69	11.38	7.68	9.56

Jadual 1.26: Purata bulanan kepekatan Habuk Halus (PM_{2.5}) di udara, Malaysia, 2020-2024 (samb.)

Table 1.26: Monthly average concentration of Particulate Matter (PM_{2.5}) in the air, Malaysia, 2020-2024 (cont'd)

µg/m³

Negeri/ Stesen State/ Station	Tahun Year	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Perak													
Pegoh, Ipoh	2020	17.86	15.64	19.31	15.07	11.16	15.28	13.73	15.95	14.86	15.31	12.35	13.57
	2021	16.07	20.38	20.68	15.47	15.17	13.83	18.12	12.58	14.65	12.68	10.23	11.77
	2022	19.35	14.51	15.47	14.62	13.88	12.06	15.39	13.39	11.41	11.91	15.78	14.45
	2023	13.06	13.03	16.04	18.59	14.57	15.42	15.69	13.87	17.11	17.83	11.41	10.04
	2024	13.86	16.28	18.99	18.39	14.93	14.65	21.14	17.00	15.13	12.74	11.29	13.28
Seri Manjung	2020	17.66	17.33	19.44	15.23	11.80	16.31	15.26	23.31	12.96	13.88	10.31	12.25
	2021	14.35	21.89	17.15	14.01	14.79	13.22	16.23r	11.51	12.36	11.70	9.15	12.59
	2022	19.07	12.69	13.97	12.12	12.85	9.86	16.00	15.02	11.50	10.13	8.87	9.85
	2023	12.29	12.55	18.58	20.38	15.23	17.47	18.27	16.19	19.57	22.30	16.07	12.31
	2024	16.14	19.43	21.01	21.49	18.13	17.35	24.21	15.29	12.69	12.07	10.87	12.73
Taiping	2020	18.96	16.69	22.47	11.88	9.91	16.60	14.24	21.73	13.22	12.13	8.65	10.51
	2021	12.26	20.71	17.03	12.03	13.41	12.83	18.68	12.70	14.69	11.30	8.08	12.34
	2022	18.21	10.97	12.58	12.07	11.10	8.80	15.55	15.95	9.09	8.78	8.77	10.95
	2023	11.81	12.21	15.54	17.74	15.19	19.40	15.57	15.15	19.47	16.46	11.17	11.21
	2024	14.11	17.18	20.12	18.66	17.50	14.64	26.01	15.70	12.63	11.12	11.53	13.89
Tanjung Malim	2020	7.40	6.78	10.11	6.99	5.95	8.29	7.60	10.58	7.97	7.51	5.17	5.91
	2021	6.23	9.78	8.52	7.80	8.40	8.39	11.75	9.84	10.58	12.23	7.55	10.50
	2022	12.58	9.18	12.51	11.82	9.06	9.97	14.64	12.68	11.90	10.57	7.20	7.97
	2023	9.17	8.31	11.03	15.94	11.41	15.07	13.16	13.36	17.14	17.78	7.79	7.57
	2024	9.09	12.11	13.93	13.74	13.19	12.01	18.68	16.40	13.82	11.27	8.69	8.59
Tasek, Ipoh	2020	17.92	14.61	20.30	12.75	11.18	17.08	17.41	21.89	15.49	14.53	12.01	11.96
	2021	15.97	21.40	21.28	16.68	16.73	15.11	18.64	15.16	15.63	15.16	12.32	13.68
	2022	18.70	15.09	16.87	16.75	16.58	13.86	17.27	16.24	13.50	10.84	11.90	12.77
	2023	15.28	13.14	18.94	21.18	16.78	18.61	21.01	18.27	21.59	20.50	13.13	12.80
	2024	16.20	18.08	22.09	22.50	17.72	17.04	24.66	18.89	16.84	13.43	11.73	13.79
Perlis													
Kangar	2020	11.22	10.79	13.55	10.30	8.89	11.99	11.23	14.24	10.94	10.62	11.80	11.43
	2021	13.86	17.46	11.77	9.75	8.20	12.08	12.95	8.08	10.41	9.35	6.79	11.06
	2022	13.39	9.62	10.51	11.08	9.77	7.09	10.84	11.87	6.82	5.85	10.09	11.47
	2023	12.93	13.73	16.76	20.44	8.95	12.56	9.22	8.72	12.73	9.25	7.40	9.09
	2024	13.05	15.03	17.12	14.72	12.76	12.97	17.85	10.00	6.38	6.96	7.69	11.42
Pulau Pinang													
Balik Pulau	2020	19.62	16.45	22.59	13.99	11.96	15.16	15.75	24.39	12.47	11.74	11.04	13.76
	2021	17.35	21.54	17.20	11.48	11.54	14.37	18.02	10.19	10.10	11.26	7.18	11.32
	2022	15.97	11.81	12.89	11.96	11.75	9.20	15.01	14.44	8.73	8.36	10.28	11.90
	2023	14.25	13.70	16.89	18.14	10.09	14.07	13.57	10.64	16.63	13.08	9.48	10.05
	2024	13.98	16.68	19.32	14.29	15.07	12.19	18.59	12.48	10.60	10.10	7.82	12.57
Perai	2020	18.96	16.25	21.52	12.02	11.75	17.34	15.89	22.15	13.34	12.25	11.82	11.88
	2021	15.43	18.18	18.25	13.67	13.44	14.21	18.56	11.82	14.65	13.72	10.07	13.18
	2022	18.93	14.59	13.21	13.65	12.52	11.35	18.34	19.58	13.31	9.84r	12.58	13.34
	2023	18.65	14.55	21.21	22.51	16.77	18.83	17.87	14.48	20.48	18.61	12.46	12.55
	2024	16.21	18.43	21.79	19.89	15.90	14.19	21.67	15.56	11.36	10.17	10.13	15.53

Jadual 1.26: Purata bulanan kepekatan Habuk Halus (PM_{2.5}) di udara, Malaysia, 2020-2024 (samb.)

Table 1.26: Monthly average concentration of Particulate Matter (PM_{2.5}) in the air, Malaysia, 2020-2024 (cont'd)

µg/m³

Negeri/ Stesen State/ Station	Tahun Year	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Pulau Pinang													
Seberang Jaya	2020	19.19	18.15	24.22	13.50	12.48	17.09	18.46	26.15	16.68	15.26	14.13	14.11
	2021	19.22	21.52	20.97	14.34	14.96	15.65	19.94	15.81	18.30	16.91	13.30	17.07
	2022	22.85	17.34	17.17	18.43	15.82	12.54	19.30	19.20	13.38	11.19	12.54	17.06
	2023	18.72	18.64	22.93	27.96	20.43	21.43	20.86	17.61	22.73	16.71	13.46	14.33
	2024	16.74	19.52	24.47	21.40	19.15	16.80	25.08	17.31	17.07	13.36	14.10	16.78
USM	2020	16.68	15.21	20.78	10.95	10.94	15.42	13.92	19.44	12.60	10.92	10.74	11.28
	2021	15.82	19.25	17.92	12.64	12.89	13.36	16.24	11.68	12.96	13.20	9.71	12.37
	2022	18.47	13.95	14.50	14.00	12.45	10.66	15.83	15.41	10.70	9.61	10.84	10.24
	2023	13.65	14.87	19.34	24.78	13.14	14.83	16.92	12.85	17.69	14.48	9.98	11.00
	2024	13.53	17.30	20.05	16.17	14.77	12.84	19.31	13.93	11.12	10.71	10.27	12.74
Sabah													
Keningau	2020	10.50	10.62	11.62	12.07	8.34	7.22	6.80	11.10	8.75	11.43	9.49	8.70
	2021	8.20	10.36	10.56	13.17	9.29	11.90	13.30	9.85	7.12	10.93	7.41	9.41
	2022	8.55	7.66	8.32	9.07	7.76	8.61	9.27	9.25	9.01	7.35	6.57	8.90
	2023	8.80	8.90	10.07	10.93	9.66	10.26	12.00	12.01	12.51	11.15	10.07	9.56
	2024	9.46	10.30	10.63	11.74	10.62	9.00	11.42	9.82	13.41	10.00	9.65	8.08
Kimanis	2020	7.73	16.27	14.99	11.75	6.96	3.81	3.93	5.44	4.06	5.11	4.88	4.63
	2021	3.97	6.66	6.91	10.80	4.42	4.14	5.34	4.45	4.29	6.38	3.78	3.78
	2022	6.10	4.60	4.69	6.05	4.80	3.85	4.85	4.78	3.56	3.24	3.10	4.13
	2023	4.32	5.47	7.09	10.01	6.59	7.16	6.86	8.04	6.14	6.24	3.12	5.04
	2024	7.29	10.32	37.04	18.30	4.81	5.55	8.87	5.22	9.22	8.37	7.18	5.56
Kota Kinabalu	2020	10.30	13.97	12.77	9.96	6.91	5.46	4.85	7.93	5.73	6.01	6.05	5.63
	2021	5.43	7.58	9.33	9.36	7.02	7.50	8.12	6.90	6.29	8.12	6.89	9.49
	2022	9.51	9.21	7.30	8.85	8.44	6.02	7.96	7.23	6.73	7.72	6.40	7.74
	2023	9.24	10.57	10.65	11.76	9.90	9.22	9.98	11.53	14.37	11.18	6.55	6.35
	2024	10.11	13.97	22.36	10.30	8.20	6.20	10.43	7.57	13.09	10.39	8.96	8.51
Sandakan	2020	8.56	9.69	10.14	9.88	8.54	8.88	9.33	9.11	9.67	10.01	9.47	8.03
	2021	5.88	7.01	7.86	10.04	6.79	7.55	9.04	7.74	6.55	9.33	7.86	7.60
	2022	8.68	7.61	7.50	8.55	6.81	7.77	8.08	8.83	7.74	7.85	6.80	7.36
	2023	6.72	8.45	9.34	11.40	8.25	7.72	9.31	10.28	10.95	11.91	8.42	7.18
	2024	8.15	8.26	10.59	9.64	8.65	8.53	9.64	9.86	11.65	10.56	10.72	6.81
Tawau	2020	7.18	6.85	6.91	7.33	6.10	6.88	7.19	6.46	5.41	4.95	6.78	6.64
	2021	6.21	7.30	7.63	7.47	6.32	7.17	6.31	6.13	6.24	7.22	6.41	10.52
	2022	12.30	11.21	10.77	10.76	10.89	11.76	10.00	10.18	9.65	9.52	10.07	10.52
	2023	10.57	11.52	13.47	12.74	9.26	11.11	12.29	13.25	14.82	17.79	11.47	11.62
	2024	12.96	16.89	13.36	12.59	10.13	9.79	12.02	11.51	15.78	13.17	12.22	9.65
Sarawak													
Bintulu	2020	10.84	14.32	13.43	12.81	11.72	8.90	9.05	12.36	10.12	12.57	8.90	9.39
	2021	7.20	11.64	10.71	15.88	12.98	14.13	16.59	12.21	12.25	13.67	10.39	11.51
	2022	10.99	12.42	14.33	14.88	13.44	13.28	14.37	11.54	12.21	9.87	12.04	12.90
	2023	13.39	15.31	13.82	19.35	18.01	17.96	17.98	20.96	21.45	17.15	11.10	10.22
	2024	12.04	15.13	15.13	11.91	11.97	12.29	15.42	10.72	15.51	10.55	11.83	10.54

Jadual 1.26: Purata bulanan kepekatan Habuk Halus (PM_{2.5}) di udara, Malaysia, 2020-2024 (samb.)Table 1.26: *Monthly average concentration of Particulate Matter (PM_{2.5}) in the air, Malaysia, 2020-2024 (cont'd)*µg/m³

Negeri/ Stesen State/ Station	Tahun Year	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Sarawak													
ILP Miri	2020	7.52	22.72	18.27	13.69	7.22	9.32	7.38	11.77	8.68	15.47	11.13	7.35
	2021	5.60	7.16	9.73	13.71	7.82	9.47	10.98	9.03	8.41	10.83	7.65	6.33
	2022	7.99	6.37	6.21	7.66	8.37	7.12	10.23	11.50	10.63	6.68	6.56	6.68
	2023	6.18	5.98	8.18	11.57	11.65	11.62	12.51	14.03	15.59	11.98	5.29	5.63
	2024	6.85	7.77	16.86	8.67	6.97	7.06	11.47	7.20	13.89	9.09	7.72	6.52
Kapit	2020	5.97	7.98	6.81	6.56	5.86	5.13	5.98	7.65	5.78	6.51	5.26	6.23
	2021	6.36	8.43	8.64	9.33	6.90	6.97	7.21	6.03	6.29	6.62	6.03	5.80
	2022	8.03	7.90	9.27	9.26	8.92	7.99	7.97	6.36	8.40	9.84	6.70	6.59
	2023	7.43	6.14	6.32	10.68	7.51	8.24	9.18	14.39	16.28	13.21	6.78	8.05
	2024	9.41	9.55	7.75	5.48	4.12	5.06	7.24	4.64	9.27	6.80	4.98	5.48
Kuching	2020	9.35	11.04	9.00	8.63	7.91	7.92	8.20	13.07	9.18	9.25	7.44	6.96
	2021	5.90	9.44	8.22	12.22	8.67	8.33	10.10	10.63	9.39	6.78	6.06	5.74
	2022	6.03	8.88	7.21	7.11	6.69	4.53	5.52	8.50	8.14	7.69	7.36	9.29
	2023	8.93	7.84	8.58	15.40	13.00	13.48	15.22	24.80	34.78	16.71	8.56	7.36
	2024	7.06	9.22	10.80	8.53	7.51	9.42	14.95	9.83	17.74	10.87	8.28	7.72
Limbang	2020	7.52	9.35	9.47	7.64	6.52	5.22	4.83	7.28	4.93	5.81	5.00	5.03
	2021	4.81	8.08	7.57	9.13	6.53	8.12	8.30	7.07	7.41	10.02	7.03	6.47
	2022	7.45	6.45	6.50	7.80	6.61	6.15	8.01	7.03	6.12	6.59	5.76	5.91
	2023	6.26	7.37	8.82	12.51	10.45	12.11	12.00	13.54	12.99	11.58	6.14	5.68
	2024	7.24	9.11	15.18	7.57	5.85	6.35	9.05	5.32	11.34	8.89	8.01	5.80
Miri	2020	12.75	21.05	13.50	10.42	8.95	13.10	10.84	12.79	10.34	11.38	14.26	11.33
	2021	8.77	18.37	15.01	13.47	10.66	14.69	13.08	11.01	9.75	11.48	8.78	10.37
	2022	11.96	10.04	7.75	9.26	12.08	10.35	10.94	10.23	9.05	8.12	8.20	8.48
	2023	8.88	8.83	10.66	15.21	12.44	14.63	15.28	15.68	15.46	12.64	6.80	7.17
	2024	10.02	12.18	17.69	9.43	8.26	8.31	13.45	8.59	14.01	9.82	10.06	8.87
Mukah	2020	5.89	7.21	7.09	6.78	5.77	4.89	5.58	9.06	7.07	8.33	5.17	5.38
	2021	5.18	6.66	6.70	9.55	7.17	6.91	9.46	8.05	8.19	8.93	5.81	6.14
	2022	7.32	7.02	7.56	7.30	7.84	7.17	9.55	7.78	6.58	5.69	7.29	6.63
	2023	6.15	6.38	10.88	16.46	10.93	11.81	14.05	13.08	15.11	12.32	6.96	5.45
	2024	7.35	9.30	10.81	6.46	6.00	7.31	11.63	6.80	14.15	9.73	6.44	6.46
Samalaju	2020	9.97	14.89	11.73	10.24	8.02	7.48	7.71	9.80	8.75	9.78	8.34	7.46
	2021	7.77	9.82	9.84	11.42	9.33	10.01	13.12	10.19	9.81	10.64	7.34	9.08
	2022	11.31	9.63	10.25	10.56	10.41	10.33	12.16	11.45	11.48	11.80	12.82	12.87
	2023	12.04	15.44	15.38	24.02	19.03	14.10	14.51	16.37	18.85	15.37	10.37	9.34
	2024	12.55	14.34	16.40	11.89	10.74	10.34	14.60	10.56	16.84	12.87	11.08	10.75
Samarahan	2020	6.63	7.03	7.24	7.80	6.23	6.08	6.42	10.42	7.64	7.56	5.66	5.48
	2021	5.65	8.40	7.83	10.21	8.36	8.68	9.02	8.63	8.76	9.36	5.86	7.43
	2022	7.03	7.23	8.62	9.16	9.43	6.50	9.63	10.53	9.08	7.35	7.11	9.01
	2023	8.11	6.79	8.60	13.63	11.11	12.54	18.38	20.27	23.55	18.04	9.37	7.56
	2024	6.70	9.04	10.65	9.14	7.96	8.14	14.14	8.78	17.42	10.61	8.16	7.30
Sarikei	2020	9.10	9.31	7.77	6.78	6.25	5.31	5.39	9.77	6.72	7.91	5.47	5.54
	2021	4.88	7.58	7.01	9.85	6.22	6.47	10.84	6.72	6.16	6.85	14.75	19.39
	2022	20.10	16.75	6.96	7.54	8.79	4.78	7.69	6.79	5.26	4.99	5.95	7.99
	2023	5.77	4.80	7.81	11.54	8.60	8.46	10.24	13.23	15.74	12.38	6.93	6.03
	2024	5.42	7.44	11.10	5.62	8.78	5.30	11.22	5.60	15.49	9.61	6.67	6.11

Jadual 1.26: Purata bulanan kepekatan Habuk Halus (PM_{2.5}) di udara, Malaysia, 2020-2024 (samb.)

Table 1.26: Monthly average concentration of Particulate Matter (PM_{2.5}) in the air, Malaysia, 2020-2024 (cont'd)

µg/m³

Negeri/ Stesen State/ Station	Tahun Year	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Sarawak													
Sibu	2020	10.16	10.59	10.48	9.14	8.79	6.72	6.60	9.74	7.04	8.16	5.82	6.05
	2021	6.07	10.19	8.29	11.07	7.48	7.78	10.25	7.69	7.44	7.95	5.96	6.09
	2022	8.39	9.85	8.95	8.39	8.40	6.57	8.35	8.18	6.92	5.87	6.23	6.62
	2023	8.72	7.44	8.10	11.85	8.58	8.37	10.27	13.05	14.64	12.68	7.93	7.23
	2024	7.75	11.78	11.54	8.10	6.82	7.24	12.23	6.67	14.36	9.42	6.82	6.94
Sri Aman	2020	7.29	10.24	7.55	7.76	6.73	5.80	5.65	10.64	7.20	9.23	5.06	6.32
	2021	4.67	8.29	7.98	9.03	8.67	7.44	10.07	7.79	9.23	8.10	6.15	6.37
	2022	7.82	8.01	8.24	9.88	10.12	6.48	7.82	9.26	6.23	5.36	4.44	5.36
	2023	6.18	6.17	6.05	11.01	7.42	8.41	11.47	19.31	24.05	14.65	6.03	5.95
	2024	5.94	6.76	7.98	5.37	5.20	6.22	11.28	6.00	18.09	8.65	5.43	5.28
Selangor													
Banting	2020	16.83	15.07	18.32	14.83	15.32	14.52	16.62	22.02	17.00	20.15	16.61	17.24
	2021	18.17	25.83	20.20	17.07	22.74	21.58	23.29	14.85	14.31	20.09	15.81	17.33
	2022	23.90	17.10	19.28	21.35	19.89	14.82	21.89	15.95	15.42	14.53	14.15	14.15
	2023	18.48	18.65	16.77	27.55	23.37	25.45	23.18	26.24	28.68	38.58	20.07	19.37
	2024	21.64	25.98	32.61	41.97	27.83	34.69	35.43	29.27	29.86	28.71	25.62	16.92
Klang	2020	26.87	25.04	24.65	19.95	22.46	23.24	22.67	25.57	21.11	22.87	22.15	22.24
	2021	22.70	27.76	26.47	23.50	28.65	22.46	27.18	23.53	23.31	29.50	26.68	33.62
	2022	26.55	21.76	19.18	21.88	20.38	15.14	19.59	20.21	10.00	18.50	20.52	25.59
	2023	25.00	20.44	22.29	26.81	21.69	26.97	20.93	23.94	25.26	40.17	21.35	25.66
	2024	27.74	24.60	26.97	29.54	25.42	22.71	24.01	21.55	17.80	14.67	13.58	22.19
Kuala Selangor	2020	13.54	13.45	17.89	13.41	12.64	16.73	18.30	21.96	15.46	15.55	11.67	12.16
	2021	15.71	22.03	17.83	16.17	18.69	19.36	17.98	13.59	16.22	16.44	12.86	15.86
	2022	17.32	13.43	16.20	18.90	19.81	15.28	24.01	23.15	14.45	12.98	10.55	13.58
	2023	14.46	16.47	19.02	22.88	20.66	23.77	20.80	18.06	24.62	20.30	10.26	8.65
	2024	10.08	13.15	18.71	18.93	17.77	15.41	19.35	15.69	14.42	10.58	10.33	11.13
Petaling Jaya	2020	18.86	20.24	21.63	15.29	16.58	17.92	19.70	19.25	16.13	17.88	24.90	31.02
	2021	27.46	26.64	29.73	26.71	25.45	20.40	23.41	20.78	22.70	23.52	18.08	19.62
	2022	23.80	20.09	21.65	22.12	18.06	16.39	21.33	17.55	23.42	22.79	22.50	18.36
	2023	17.54	17.15	17.97	25.92	22.14	23.92	18.29	21.50	27.64	31.69	16.65	16.91
	2024	16.83	20.26	25.68	27.63	23.32	19.34	21.60	17.07	17.93	16.73	12.52	12.48
Shah Alam	2020	20.67	19.44	19.98	15.78	16.41	18.12	18.00	19.43	15.95	17.26	17.46	18.36
	2021	18.01	23.57	23.75	20.46	21.50	16.67	18.97	17.10	20.54	24.05	20.18	23.07
	2022	26.80	16.52	18.33	22.24	21.84	20.65	24.66	20.28	21.86	19.51	18.98	15.99
	2023	17.66	17.32	18.15	22.64	19.64	22.52	20.41	28.82	36.08	32.72	14.81	14.04
	2024	15.23	16.43	24.37	23.31	21.22	21.23	20.36	17.23	14.64	17.78	18.16	19.22
Terengganu													
Besut	2020	10.38	10.81	13.08	10.56	10.94	9.09	8.48	14.52	12.40	10.90	10.18	8.35
	2021	10.87	16.42	10.39	11.15	10.48	10.22	13.10	10.29	10.45	12.09	7.63	10.85
	2022	14.81	8.78	13.37	13.52	12.57	12.18	13.67	11.73	7.83	6.34	7.13	10.92
	2023	11.33	12.61	13.02	21.73	15.15	15.70	15.91	11.83	13.23	12.43	6.66	5.89
	2024	9.61	14.85	15.08	16.92	17.19	12.80	18.47	10.21	8.85	7.69	6.18	8.70

Jadual 1.26: Purata bulanan kepekatan Habuk Halus (PM_{2.5}) di udara, Malaysia, 2020-2024 (samb.)

Table 1.26: Monthly average concentration of Particulate Matter (PM_{2.5}) in the air, Malaysia, 2020-2024 (cont'd)

µg/m³

Negeri/ Stesen State/ Station	Tahun Year	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Terengganu													
Kemaman	2020	11.70	13.65	14.54	11.39	10.90	12.11	11.89	12.28	12.46	12.42	7.73	8.77
	2021	8.76	12.48	8.74	10.01	9.04	11.74	16.57	12.33	12.25	12.26	7.14	8.88
	2022	9.97	6.87	9.39	10.30	12.25	12.70	16.36	12.21	13.25	9.26	8.86	8.05
	2023	9.99	9.76	13.05	21.34	15.07	14.96	14.77	15.79	20.35	21.15	8.34	8.80
	2024	10.89	14.59	15.89	15.72	14.01	13.42	19.19	15.41	15.69	13.10	8.39	10.18
Kuala Terengganu	2020	14.43	13.27	17.91	13.16	14.61	14.86	15.43	17.81	16.90	14.37	8.67	11.44
	2021	16.39	22.69	15.81	15.91	14.72	17.48	18.28	17.07	14.00	16.28	8.75	10.12
	2022	15.88	9.56	15.38	18.53	20.28	16.04	20.75	17.67	14.32	10.36	10.92	11.43
	2023	13.35	15.66	18.92	27.88	18.00	22.41	22.15	19.37	18.66	17.36	7.51	6.79
	2024	12.51	17.74	18.08	18.59	16.01	15.79	22.61	17.00	14.39	13.35	9.71	14.01
Paka	2020	10.14	10.10	9.29	8.22	7.43	8.55	8.05	10.42	10.29	10.12	5.62	6.24
	2021	8.48	11.16	7.54	9.31	8.40	12.20	14.14	11.38	10.00	10.63	5.85	8.16
	2022	9.04	6.92	7.98	8.96	9.98	10.85	13.98	11.11	11.02	6.66	6.93	7.07
	2023	9.19	9.14	12.31	19.46	18.39	21.19	14.33	14.86	17.25	19.67	6.40	6.24
	2024	10.71	12.97	13.32	12.14	18.72	12.36	18.78	17.10	14.45	11.35	5.49	7.48
Wilayah Persekutuan													
Batu Muda, Kuala Lumpur	2020	18.56	16.95	20.53	16.13	20.25	22.13	16.86	19.18	14.39	16.16	14.02	14.83
	2021	13.85	17.31	18.55	17.43	17.64	14.26	16.23	13.86	15.84	15.85	13.88	16.57
	2022	19.01	14.49	16.67	18.22	16.94	13.79	18.14	16.97	16.85	14.81	13.52	22.69
	2023	29.92	19.80	17.10	19.18	18.17	22.18	19.44	21.02	26.69	30.71	18.92	16.76
	2024	14.60	17.16	21.73	24.39	18.26	17.27	20.14	17.02	16.79	14.66	12.10	14.86
Cheras, Kuala Lumpur	2020	18.46	15.79	18.55	13.96	16.30	16.60	15.50	17.40	14.32	14.43	13.73	14.37
	2021	13.97	19.47	21.01	18.84	20.30	17.93	17.69	13.96	14.00	15.32	13.58	15.66
	2022	18.37	17.65	14.04	16.19	15.02	13.37	17.05	19.38	23.34	24.59	25.79	13.16
	2023	15.47	17.97	21.98	28.70	17.33	23.20	16.84	18.09	33.13	36.09	17.41	19.10
	2024	19.15	23.37	24.74	35.98	24.99	18.83	22.24	17.90	18.57	15.30	13.85	13.57
Labuan	2020	12.08	11.30	14.12	13.56	10.18	8.31	8.61	11.11	8.10	13.62	11.31	8.81
	2021	7.25	10.56	9.38	12.09	10.97	13.91	12.60	13.03	14.50	12.85	12.01	9.03
	2022	11.95	7.83	9.47	10.29	12.83	9.12	9.95	10.33	11.77	6.93	8.42	8.04
	2023	9.48	9.39	8.79	15.02	11.63	10.19	8.82	12.45	13.41	14.01	6.96	6.86
	2024	8.81	9.92	15.06	10.16	9.44	10.52	12.30	8.77	12.04	11.34	11.68	9.51
Putrajaya	2020	14.83	16.53	19.74	15.84	15.96	17.19	16.71	21.31	14.88	17.53	14.27	14.71
	2021	14.55	20.61	19.20	17.36	17.36	15.16	18.20	13.37	13.28	15.66	11.55	12.91
	2022	15.57	11.00	14.21	15.30	14.19	11.68	17.49	16.07	15.58	12.07	11.76	11.96
	2023	14.23	12.40	15.42	25.24	19.89	24.37	22.27	28.12	30.16	29.94	15.75	15.62
	2024	17.14	21.04	29.99	22.46	16.53	18.86	25.85	23.81	17.27	17.04	14.31	16.19

Sumber: Jabatan Alam Sekitar
Source: Department of Environment

Nota/ Notes:

Garis Panduan Kualiti Udara Malaysia: PM_{2.5} tidak melebihi 50 µg/m³
Malaysian Ambient Air Quality Guidelines: PM_{2.5} not exceeding 50 µg/m³

Setiap stesen telah dikelaskan kepada beberapa kategori iaitu industri, urban, rural dan sub-urban. Pengelasan ini menyebabkan terdapat beberapa parameter yang tidak tersedia di stesen-stesen tertentu.

Each station has been classified into several categories, namely industrial, urban, rural, and suburban. This classification has resulted in some parameters being unavailable at certain stations.

Jadual 1.27: Purata bulanan kepekatan Habuk Halus (PM₁₀) di udara, Malaysia, 2020-2024Table 1.27: *Monthly average concentration of Particulate Matter (PM₁₀) in the air, Malaysia, 2020-2024*µg/m³

Negeri/ Stesen State/ Station	Tahun Year	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Johor													
Batu Pahat	2020	16.90	16.84	19.49	16.27	17.35	17.92	16.36	20.30	14.07	14.14	16.51	17.03
	2021	16.04	24.22	22.35	21.51	17.50	20.69	22.90	15.71	15.86	18.70	15.10	14.62
	2022	15.36	13.14	15.86	16.39	18.88	14.66	19.80	16.90	17.19	12.89	15.78	15.92
	2023	16.85	13.23	14.91	23.05	14.08	18.31	17.81	17.93	22.01	43.30	16.57	13.60
	2024	14.99	19.70	23.48	24.38	22.23	26.61	28.02	25.84	27.55	20.35	15.48	17.30
Kluang	2020	13.62	13.79	16.20	12.00	14.44	16.61	15.15	14.78	10.15	14.48	11.10	15.72
	2021	14.64	21.35	17.55	20.01	17.07	19.33	19.78	14.28	14.18	18.47	13.42	10.48
	2022	13.65	11.68	14.82	15.91	19.12	15.53	18.20	15.39	12.66	15.25	14.78	16.88
	2023	17.78	16.46	17.29	25.80	18.65	22.72	23.11	21.56	26.36	28.65	16.51	12.75
	2024	14.89	18.32	20.19	21.04	23.21	25.93	36.50	20.15	20.61	20.40	13.30	12.47
Kota Tinggi	2020	15.84	16.64	16.20	14.18	18.46	15.14	12.32	15.51	13.47	17.70	12.97	13.38
	2021	15.78	20.30	14.09	18.27	13.84	18.34	16.69	13.44	14.00	16.80	13.84	13.09
	2022	7.91	6.75	11.61	16.32	16.77	16.04	14.84	14.78	16.89	13.70	12.84	13.92
	2023	13.55	16.01	18.37	22.47	17.20	18.00	19.76	24.27	25.37	29.73	15.08	11.07
	2024	12.59	15.71	15.61	13.65	15.50	17.50	22.82	19.71	21.43	20.58	15.06	15.21
Larkin	2020	22.95	24.36	22.57	18.21	21.71	23.21	22.33	26.23	24.68	24.70	23.12	21.72
	2021	21.30	29.17	25.16	30.59	27.92	27.54	22.31	17.59	17.96	27.43	22.50	21.60
	2022	20.27	20.58	22.46	24.58	23.11	28.11	30.33	32.22	30.81	23.54	23.38	22.98
	2023	26.88	25.00	27.78	40.23	30.54	33.31	32.52	38.80	43.82	51.81	28.07	22.88
	2024	20.93	23.29	24.03	28.24	25.74	27.02	29.13	28.97	28.67	31.01	24.58	21.99
Pasir Gudang	2020	16.86	18.44	18.16	15.93	19.29	23.31	22.87	27.13	23.05	25.82	19.74	16.77
	2021	16.09	24.57	19.96	24.75	22.12	13.69	23.32	18.77	20.45	21.25	20.07	18.53
	2022	18.94	15.56	20.41	26.35	26.42	26.77	27.25	27.18	28.55	21.58	17.31	16.44
	2023	14.08	12.08	20.28	33.01	25.96	29.95	30.31	35.48	47.08	40.95	24.32	16.74
	2024	16.07	21.26	20.53	21.57	25.55	21.97	23.90	26.26	28.47	31.68	22.27	18.97
Pengerang	2020	17.23	15.06	18.09	14.19	13.37	11.35	11.46	15.70	12.28	14.52	13.86	15.83
	2021	17.95	28.98	19.49	18.17	13.75	16.86	17.25	13.62	15.97	18.08	15.63	15.07
	2022	15.75	12.98	13.38	18.20	20.37	16.03	15.85	13.95	16.53	17.88	16.47	14.19
	2023	12.39	16.44	19.58	22.74	15.45	16.51	18.15	23.65	22.70	25.89	15.55	13.02
	2024	15.18	17.36	16.53	16.49	15.80	19.12	25.37	23.14	25.66	20.82	16.14	19.25
Segamat	2020	18.75	19.41	21.83	20.16	19.04	20.13	17.07	20.81	15.93	23.34	16.02	17.10
	2021	15.44	22.08	21.94	22.54	18.61	21.50	22.21	16.74	15.81	19.84	14.82	14.72
	2022	14.28	11.60	17.11	17.35	18.01	21.33	26.13	22.14	28.04	25.61	17.37	14.52
	2023	14.65	15.31	20.58	34.12	27.93	21.67	24.98	26.13	32.47	34.92	15.59	11.37
	2024	13.87	15.43	17.87	20.78	18.46	20.21	25.40	19.30	18.26	17.33	11.90	12.62
Tangkak	2020	21.27	20.14	26.40	20.09	18.85	21.96	17.82	19.87	17.42	18.40	21.98	24.32
	2021	21.11	33.43	28.71	30.92	21.62	21.66	21.41	17.04	18.77	23.31	23.58	19.85
	2022	17.79	11.65	18.48	17.63	16.77	24.84	25.74	22.13	22.33	21.28	20.78	21.64
	2023	18.78	20.79	24.53	34.18	28.65	27.38	21.57	22.47	27.49	39.28	19.89	17.64
	2024	19.60	21.75	26.12	24.76	19.41	23.17	26.58	22.05	25.27	21.63	15.90	19.78
Kedah													
Alor Setar	2020	13.12	20.63	28.48	15.78	14.24	18.04	18.04	25.17	17.58	12.92	13.82	16.88
	2021	23.10	29.08	23.04	17.17	14.47	15.81	20.13	15.07	21.61	17.43	10.49	18.03
	2022	23.37	17.94	19.00	18.00	15.97	12.53	23.95	23.07	20.27	11.82	13.39	16.47
	2023	20.16	22.91	26.27	28.77	18.21	21.09	18.77	15.90	20.62	17.67	12.41	14.14
	2024	15.66	19.27	26.87	27.12	36.66	30.23	27.98	15.81	14.83	11.82	10.31	14.61

Jadual 1.27: Purata bulanan kepekatan Habuk Halus (PM₁₀) di udara, Malaysia, 2020-2024 (samb.)Table 1.27: *Monthly average concentration of Particulate Matter (PM₁₀) in the air, Malaysia, 2020-2024 (cont'd)*µg/m³

Negeri/ Stesen State/ Station	Tahun Year	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Kedah													
Kulim	2020	17.47	17.97	22.29	12.79	12.62	17.93	17.65	27.45	18.07	12.75	16.34	14.01
	2021	16.48	22.02	18.09	13.90	14.05	14.36	15.14	9.50	9.68	8.61	15.97	20.86
	2022	25.48	17.64	21.05	17.99	18.30	17.54	27.02	25.50	21.61	17.43	17.99	19.90
	2023	19.94	21.79	25.10	28.13	20.71	30.26	30.51	22.24	26.52	24.32	18.90	17.69
	2024	24.36	26.95	27.04	26.24	26.31	22.34	36.33	24.08	23.02	19.07	18.87	27.06
Langkawi	2020	21.42	21.90	19.79	15.95	15.59	17.46	17.47	18.53	14.67	14.85	14.32	15.99
	2021	21.75	22.54	19.27	20.08	15.62	18.17	19.31	14.76	12.85	14.76	12.25	17.68
	2022	21.49	16.05	18.30	19.17	17.29	14.49	19.03	15.84	14.03	11.75	13.48	16.23
	2023	18.85	20.98	25.88	29.67	19.11	20.72	19.68	16.59	18.40	15.12	12.56	14.95
	2024	21.18	21.82	25.03	23.06	21.76	20.19	27.14	16.96	14.58	13.69	13.20	16.76
Sungai Petani	2020	27.54	23.34	28.93	17.44	16.62	23.67	22.19	29.61	18.24	15.22	13.34	11.70
	2021	20.93	27.69	24.88	19.96	21.75	20.71	26.30	20.28	24.21	20.15	15.43	19.03
	2022	27.32	20.20	20.97	21.65	22.02	17.87	27.86	24.72	18.49	14.38	15.38	17.44
	2023	18.47	20.42	25.23	28.87	20.26	22.98	30.50	25.03	25.02	20.12	16.76	15.46
	2024	20.41	23.34	28.22	23.64	23.66	19.52	31.02	19.07	18.24	16.65	15.28	18.62
Kelantan													
Kota Bharu	2020	25.97	27.62	26.24	21.19	19.93	19.88	20.90	26.03	22.18	19.30	16.27	18.31
	2021	34.80	42.59	29.06	29.77	27.15	25.70	34.00	19.43	22.63	24.55	13.89	22.28
	2022	20.08	25.24	22.10	25.41	25.09	26.10	22.73	17.18	14.55	16.81	22.48	20.08
	2023	27.25	33.89	36.26	37.23	24.36	26.32	25.48	20.91	22.40	24.71	16.14	19.26
	2024	29.27	30.07	26.22	27.40	26.85	24.43	33.05	20.84	21.00	19.49	21.36	25.58
Tanah Merah	2020	34.38	35.82	25.45	20.70	21.23	23.68	30.97	28.91	22.23	32.71	29.13	34.38
	2021	47.24	30.14	25.94	20.74	17.05	22.51	20.16	22.03	24.32	18.77	26.08	47.24
	2022	23.62	28.64	24.67	24.31	21.72	27.78	21.12	17.26	19.62	18.52	23.43	23.62
	2023	26.50	35.04	35.92	40.78	28.04	28.60	39.15	20.37	23.41	24.57	20.26	17.58
	2024	28.27	33.30	36.75	39.88	35.44	29.01	33.15	22.08	22.74	17.13	15.68	21.65
Melaka													
Alor Gajah	2020	16.15	15.93	16.82	14.26	20.49	17.77	15.98	17.76	13.72	25.28	16.09	17.73
	2021	15.61	22.92	20.78	24.89	23.42	25.41	27.57	19.16	17.99	20.54	15.39	14.03
	2022	14.40	12.40	16.89	17.35	19.20	15.58	24.10	22.46	22.99	17.11	15.66	15.54
	2023	17.00	14.85	17.69	27.21	21.62	22.62	20.87	21.67	24.54	39.86	17.08	13.59
	2024	15.41	18.54	22.99	24.96	17.61	27.14	33.02	27.45	22.67	20.96	15.28	15.72
Bandaraya Melaka	2020	19.65	20.37	21.35	16.64	19.23	20.05	18.59	23.81	17.92	18.33	16.34	18.44
	2021	17.32	26.18	20.84	23.61	21.67	21.03	28.70	19.65	17.43	19.49	16.57	16.92
	2022	18.35	15.94	19.73	19.42	23.14	20.92	26.20	20.62	20.39	16.74	17.21	18.21
	2023	19.68	20.67	20.45	31.17	21.57	21.45	22.95	24.53	30.16	36.98	20.48	17.02
	2024	20.60	22.69	26.68	26.54	18.34	22.92	29.50	21.14	21.12	20.75	17.23	17.71
Bukit Rambai	2020	20.86	20.97	21.17	16.92	21.87	21.66	21.64	24.54	18.96	22.84	17.43	18.84
	2021	17.14	25.32	27.35	31.32	24.92	24.87	30.51	24.97	20.60	25.04	20.14	19.33
	2022	20.49	17.84	22.48	24.01	26.25	23.26	29.10	25.29	25.14	20.12	19.08	18.90
	2023	21.73	19.14	21.77	31.27	25.25	27.99	30.19	32.39	32.23	45.02	21.97	18.92
	2024	21.54	25.28	30.77	30.23	22.53	29.09	35.54	29.44	24.53	23.04	18.41	20.86

Jadual 1.27: Purata bulanan kepekatan Habuk Halus (PM₁₀) di udara, Malaysia, 2020-2024 (samb.)Table 1.27: *Monthly average concentration of Particulate Matter (PM₁₀) in the air, Malaysia, 2020-2024 (cont'd)*µg/m³

Negeri/ Stesen State/ Station	Tahun Year	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Negeri Sembilan													
Nilai	2020	26.79	27.97	28.51	22.50	28.41	32.84	30.95	25.65	21.64	23.97	21.50	38.87
	2021	31.13	35.96	34.01	36.86	31.32	26.49	28.29	24.55	25.79	31.17	25.06	20.92
	2022	21.15	17.61	22.07	32.14	39.00	30.49	36.50	19.86	23.24	31.79	30.68	26.50
	2023	32.63	23.19	29.53	43.52	36.18	36.73	38.21	47.66	48.05	45.77	29.28	28.40
	2024	25.91	28.82	37.34	38.55	27.82	35.55	40.95	32.76	33.47	32.59	27.62	28.93
Port Dickson	2020	20.56	20.14	20.84	16.44	18.58	19.71	18.60	23.17	16.76	15.74	15.70	16.60
	2021	16.22	24.96	23.12	22.95	21.51	21.34	24.07	18.23	18.07	18.52	17.36	19.17
	2022	20.80	18.11	21.98	21.70	23.25	16.88	23.44	18.94	16.83	16.81	22.13	24.98
	2023	25.56	28.91	23.41	26.83	18.05	20.52	21.94	21.79	28.03	33.90	18.89	16.21
	2024	15.30	16.53	21.45	21.64	14.24	15.73	29.72	21.09	26.65	20.95	18.06	19.80
Seremban	2020	19.34	17.86	19.45	16.18	19.25	19.38	17.76	20.15	17.22	18.71	16.50	18.84
	2021	17.17	24.69	21.82	19.97	18.55	18.11	21.72	16.33	15.81	17.93	16.47	15.88
	2022	17.64	20.46	30.90	37.18	31.24	29.19	32.22	24.61	24.99	25.21	26.25	21.54
	2023	29.63	18.67	25.43	42.14	32.24	26.56	30.40	28.12	39.26	39.28	20.26	17.70
	2024	20.13	24.80	28.74	28.95	19.86	24.93	31.08	22.80	24.47	23.37	18.88	18.19
Pahang													
Balok Baru	2020	24.97	30.53	22.51	15.66	15.79	19.63	17.99	20.51	20.31	23.97	21.91	24.04
	2021	32.40	38.57	28.05	28.88	24.52	22.07	25.65	20.27	19.86	23.29	22.02	28.06
	2022	34.21	31.02	22.94	25.08	25.42	22.43	26.54	18.73	22.21	22.72	23.80	23.36
	2023	28.60	28.90	30.24	32.04	28.97	31.87	35.32	35.90	31.62	28.07	20.98	25.63
	2024	29.79	32.01	38.57	34.78	28.53	21.88	32.12	27.98	22.08	23.29	20.73	21.40
Jerantut	2020	17.87	18.48	21.08	16.61	18.01	21.22	19.58	26.57	21.09	21.91	13.41	14.49
	2021	15.30	22.61	18.44	20.17	19.28	19.05	23.60	19.60	19.09	21.51	14.18	14.70
	2022	17.65	14.18	17.40	16.72	22.05	21.75	24.99	18.03	17.66	12.40	12.07	15.16
	2023	15.06	16.85	22.71	30.00	26.83	22.11	26.25	21.54	27.59	27.71	13.67	13.26
	2024	16.55	19.80	15.99	18.09	18.17	20.29	28.30	18.15	18.69	15.70	13.18	12.93
Kuantan	2020	19.17	21.97	16.86	13.21	14.29	17.93	15.37	19.17	17.26	19.42	12.84	14.56
	2021	17.58	23.40	15.27	17.79	15.29	17.56	17.99	14.49	14.40	16.83	11.83	15.16
	2022	17.90	11.87	15.98	14.83	18.71	17.60	19.50	15.08	17.26	12.61	10.93	13.17
	2023	16.14	19.39	21.56	23.98	22.57	25.49	20.82	25.15	30.48	30.10	13.66	12.61
	2024	19.73	22.39	23.12	18.74	16.80	18.99	30.72	23.06	21.97	17.87	11.25	14.78
Rompin	2020	23.40	29.62	32.67	32.50	16.92	18.92	15.66	18.03	16.32	18.86	15.67	29.65
	2021	32.04	41.13	37.18	32.23	21.35	27.06	33.63	25.77	17.15	20.06	15.18	18.09
	2022	21.74	15.20	16.27	15.65	19.25	16.17	21.41	18.28	19.61	14.99	12.92	15.42
	2023	16.86	18.76	22.51	24.20	19.69	23.75	20.98	22.25	26.47	30.34	14.42	13.97
	2024	19.42	20.56	25.94	40.81	31.89	18.71	24.75	20.05	21.26	15.86	12.99	16.10
Temerloh	2020	22.90	22.87	23.33	17.86	21.05	25.33	22.17	25.89	22.62	25.10	16.61	18.68
	2021	19.37	27.10	20.44	23.92	22.07	22.25	27.16	22.31	20.80	23.08	17.60	17.28
	2022	19.61	14.91	17.31	16.87	19.45	17.90	26.17	20.17	18.31	10.94	11.49	17.53
	2023	19.19	20.27	24.95	36.66	32.17	29.75	34.20	28.42	29.35	32.42	16.01	10.30
	2024	18.96	24.80	24.07	24.00	20.87	22.48	30.21	22.62	20.12	18.09	13.44	15.23

Jadual 1.27: Purata bulanan kepekatan Habuk Halus (PM₁₀) di udara, Malaysia, 2020-2024 (samb.)Table 1.27: *Monthly average concentration of Particulate Matter (PM₁₀) in the air, Malaysia, 2020-2024 (cont'd)*µg/m³

Negeri/ Stesen State/ Station	Tahun Year	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Perak													
Pegoh, Ipoh	2020	28.36	26.02	28.21	20.24	17.63	24.80	20.60	22.26	18.07	19.35	15.75	16.76
	2021	26.47	32.17	33.02	27.53	26.32	21.52	29.18	21.84	22.80	18.65	14.21	14.63
	2022	30.36	26.22	26.77	25.00	24.86	21.01	25.70	19.02	14.15	22.30	25.75	25.31
	2023	23.56	25.45	29.59	31.91	28.74	27.12	28.47	22.34	22.89	25.40	22.45	22.07
	2024	27.35	27.05	30.51	30.00	20.60	22.55	32.37	25.08	23.27	22.88	21.03	24.03
Seri Manjung	2020	26.43	26.95	28.85	22.58	18.87	25.22	23.01	31.81	20.68	21.89	17.18	20.46
	2021	22.83	32.00	25.20	22.31	23.32	20.22	25.92	18.32	19.87	20.25	16.83	21.38
	2022	28.36	20.50	23.11	20.10	21.35	16.50	26.19	22.14	18.42	14.85	10.31	15.79
	2023	16.58	14.40	27.48	29.01	23.96	25.92	29.41	24.11	27.83	28.72	22.22	20.33
	2024	24.96	27.85	30.26	26.64	21.58	21.26	30.02	23.96	20.21	19.71	17.40	19.77
Taiping	2020	32.96	30.27	34.67	22.22	18.48	27.07	22.51	31.37	21.59	20.24	14.86	16.34
	2021	19.58	30.21	27.17	21.71	22.66	20.64	30.96	19.76	22.56	20.08	16.75	22.12
	2022	29.80	18.46	21.15	21.22	20.35	16.82	27.64	25.45	13.86	15.74	15.61	19.70
	2023	20.59	23.00	25.80	28.41	25.83	30.99	28.85	23.81	29.73	27.21	20.82	20.03
	2024	24.46	28.52	31.98	30.71	28.49	25.40	41.28	25.21	20.75	21.09	25.23	24.68
Tanjung Malim	2020	11.14	10.75	13.99	10.35	8.18	10.67	10.26	12.96	12.70	12.62	9.95	10.92
	2021	10.58	14.35	13.58	13.80	13.08	12.35	15.95	17.12	17.00	17.91	12.95	13.70
	2022	15.57	12.94	20.19	19.45	16.21	14.09	17.59	17.97	19.16	17.53	13.63	12.77
	2023	13.36	15.56	18.67	25.03	19.34	22.17	21.73	21.37	26.34	25.80	14.76	14.92
	2024	16.01	18.71	19.66	23.42	22.16	19.47	28.45	24.30	19.35	17.17	16.22	16.42
Tasek, Ipoh	2020	25.54	23.02	27.51	16.80	14.75	24.43	28.03	32.76	24.71	22.21	20.07	22.35
	2021	26.54	33.56	32.83	28.84	23.96	20.13	27.93	25.16	25.64	27.47	20.91	21.71
	2022	28.86	25.25	27.76	27.77	24.19	19.27	28.31	25.65	22.59	19.15	20.84	21.57
	2023	21.98	20.71	27.29	30.78	25.59	24.86	33.56	29.18	32.36	29.29	22.51	21.81
	2024	23.99	26.48	33.99	36.19	31.29	33.15	40.46	36.13	30.11	25.17	23.63	26.48
Perlis													
Kangar	2020	21.53	23.51	21.57	15.61	13.96	17.44	16.80	21.33	17.28	15.62	17.47	18.75
	2021	24.30	28.47	21.61	17.20	13.39	16.84	19.94	14.40	16.91	15.32	11.34	19.02
	2022	22.49	16.65	17.14	16.79	15.76	11.92	20.22	19.10	13.01	10.91	14.85	19.16
	2023	21.19	24.28	28.21	29.65	15.15	19.21	17.03	14.61	19.86	14.56	14.06	18.28
	2024	24.24	27.14	28.24	22.26	18.51	19.00	27.12	15.82	12.55	11.09	13.83	19.57
Pulau Pinang													
Balik Pulau	2020	29.04	24.95	30.41	19.52	18.79	22.07	22.80	32.03	19.70	19.45	17.46	20.20
	2021	24.46	31.83	25.40	19.45	17.59	21.26	26.60	17.85	15.94	18.45	13.19	17.87
	2022	24.01	18.51	19.15	18.66	19.34	15.23	23.65	20.22	14.58	13.42	15.65	17.28
	2023	19.47	20.49	24.00	24.80	16.15	20.27	21.19	15.87	22.74	18.97	14.77	15.59
	2024	20.60	23.13	25.60	20.28	19.43	17.16	26.72	17.63	16.86	15.86	14.25	19.38
Perai	2020	28.14	26.76	30.94	18.33	19.26	26.23	24.55	32.05	20.78	19.19	16.62	16.57
	2021	19.00	22.28	23.83	22.00	20.98	20.59	27.57	19.11	23.37	23.72	17.82	22.18
	2022	29.75	23.29	21.91	21.30	20.86	18.80	30.13	27.12	19.98	14.84	18.34	17.70
	2023	23.03	19.09	27.03	28.74	22.97	27.87	32.01	22.03	29.84	25.58	20.15	21.02
	2024	25.22	26.81	30.30	25.54	20.32	18.64	27.11	19.06	14.84	13.46	12.60	20.89

Jadual 1.27: Purata bulanan kepekatan Habuk Halus (PM₁₀) di udara, Malaysia, 2020-2024 (samb.)Table 1.27: *Monthly average concentration of Particulate Matter (PM₁₀) in the air, Malaysia, 2020-2024 (cont'd)*µg/m³

Negeri/ Stesen State/ Station	Tahun Year	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Pulau Pinang													
Seberang Jaya	2020	28.38	27.10	32.81	19.19	19.45	25.30	26.14	35.10	24.30	22.76	21.07	21.48
	2021	27.26	28.99	27.69	20.63	20.78	20.16	26.42	22.77	25.11	24.61	20.47	25.78
	2022	34.64	25.96	23.45	24.69	23.33	19.67	28.80	26.29	19.57	15.94	17.35	20.11
	2023	24.89	27.64	32.66	37.64	29.28	30.47	31.63	25.37	31.42	23.66	21.74	22.95
	2024	26.65	29.51	33.81	29.44	26.51	25.07	36.14	25.10	26.03	20.24	22.35	25.06
USM	2020	24.41	23.03	27.94	15.29	16.29	21.29	19.89	25.99	18.39	16.43	15.45	16.55
	2021	21.99	26.80	24.57	18.78	18.45	17.97	22.94	16.33	17.97	19.39	14.73	18.50
	2022	26.27	19.81	20.37	19.83	19.11	15.83	23.37	21.26	15.78	14.19	16.30	15.54
	2023	19.38	21.61	27.43	32.42	19.55	21.80	26.55	18.69	24.57	19.88	15.62	17.39
	2024	21.56	25.67	27.25	21.69	19.69	18.27	27.53	19.50	16.34	15.74	15.24	18.05
Sabah													
Keningau	2020	17.87	18.21	18.63	18.86	16.34	14.30	12.91	14.68	14.59	17.64	16.83	18.52
	2021	16.74	18.83	20.20	22.93	20.23	20.58	21.27	16.92	15.61	19.06	16.71	17.02
	2022	16.74	15.13	16.26	16.22	16.32	17.48	19.61	19.37	19.39	15.10	13.33	15.59
	2023	14.67	16.02	17.13	17.75	16.93	17.07	21.36	19.41	18.99	17.60	15.86	17.72
	2024	17.38	17.12	16.86	19.23	22.34	18.48	19.85	18.28	22.75	17.92	17.75	16.91
Kimanis	2020	17.87	32.92	25.18	20.76	13.55	10.86	10.45	12.07	10.93	10.17	10.82	12.11
	2021	11.03	15.70	16.18	19.93	11.28	6.69	6.21	10.09	10.74	13.81	8.55	11.92
	2022	15.27	13.42	11.28	14.41	12.21	11.79	12.12	13.12	9.22	7.80	5.74	11.94
	2023	12.30	12.85	17.04	18.02	14.62	15.46	14.89	10.53	13.05	13.44	10.42	11.46
	2024	14.63	19.17	50.10	30.11	8.78	9.56	13.91	9.10	12.57	11.91	12.64	11.54
Kota Kinabalu	2020	23.69	29.44	25.17	19.93	16.46	13.22	9.87	14.03	10.57	7.44	14.22	18.12
	2021	17.25	21.38	23.65	23.13	23.57	16.40	18.24	18.30	18.20	21.34	16.93	16.21
	2022	13.19	15.82	12.69	20.36	20.20	11.46	9.55	10.81	16.48	18.21	20.19	20.27
	2023	21.44	24.47	24.00	23.88	22.01	20.11	22.45	24.54	29.21	20.57	17.76	23.41
	2024	35.37	29.92	37.33	20.58	20.52	14.56	16.16	13.17	20.45	20.86	20.26	20.83
Sandakan	2020	16.84	20.31	17.65	14.90	13.10	13.91	13.77	14.34	15.42	15.48	14.92	14.10
	2021	12.03	15.53	14.95	17.01	12.66	12.10	14.98	12.66	12.54	15.92	14.79	15.27
	2022	17.78	16.16	14.12	15.27	11.28	9.86	10.53	11.22	10.19	10.48	9.56	10.48
	2023	9.42	12.35	13.09	13.93	10.92	17.61	17.07	16.51	17.35	18.13	15.05	14.70
	2024	18.32	19.72	19.48	16.34	13.31	14.78	15.70	15.01	17.86	16.43	17.26	13.55
Tawau	2020	13.83	13.60	12.35	13.19	12.85	20.23	14.27	23.00	11.86	18.27	25.73	14.30
	2021	13.08	15.63	16.26	14.88	12.95	12.92	12.71	12.11	13.14	14.50	14.80	23.09
	2022	25.55	22.99	22.29	22.27	22.37	23.05	20.07	19.45	19.41	20.29	21.48	21.38
	2023	21.25	24.00	25.75	23.00	18.96	20.36	20.74	23.58	24.57	28.20	23.08	24.91
	2024	26.48	27.80	25.35	26.10	19.30	20.40	24.40	22.21	29.72	24.25	23.72	20.12
Sarawak													
Bintulu	2020	19.27	24.61	21.49	20.02	20.21	16.66	16.83	21.67	18.81	22.58	16.98	18.76
	2021	13.46	20.51	19.54	26.65	21.83	22.91	26.90	20.63	21.12	21.28	19.02	20.50
	2022	18.25	20.90	21.84	22.87	21.58	23.13	24.95	19.35	18.12	14.93	18.75	20.94
	2023	20.85	24.47	22.67	28.59	26.62	28.59	28.33	31.92	30.88	25.08	16.60	17.36
	2024	20.86	25.57	24.77	17.93	16.33	18.35	19.74	15.28	22.54	14.35	20.90	19.30

Jadual 1.27: Purata bulanan kepekatan Habuk Halus (PM₁₀) di udara, Malaysia, 2020-2024 (samb.)Table 1.27: *Monthly average concentration of Particulate Matter (PM₁₀) in the air, Malaysia, 2020-2024 (cont'd)*µg/m³

Negeri/ Stesen State/ Station	Tahun Year	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Sarawak													
ILP Miri	2020	14.87	33.22	25.76	20.89	13.86	15.09	13.22	18.01	15.52	22.01	17.42	13.77
	2021	10.87	13.98	16.97	20.09	14.43	16.46	18.01	15.61	13.81	17.55	14.63	13.84
	2022	14.83	11.72	10.82	12.07	17.69	14.08	17.21	17.53	16.89	12.79	12.61	13.85
	2023	12.21	13.32	15.44	18.68	19.62	18.86	18.74	22.10	23.85	18.21	8.97	11.77
	2024	14.35	14.38	24.25	16.39	15.68	14.82	19.78	12.88	21.72	16.36	14.51	13.98
Kapit	2020	13.25	16.94	14.53	13.67	12.85	11.58	12.26	15.07	11.66	12.62	10.91	12.46
	2021	11.99	15.21	15.05	17.55	15.51	14.60	12.88	9.55	13.45	14.15	13.08	12.35
	2022	14.94	13.90	16.60	16.46	17.35	15.82	15.56	14.11	15.47	16.00	13.65	13.56
	2023	13.95	13.89	14.04	18.83	15.93	17.08	18.26	22.83	25.31	21.15	14.32	15.98
	2024	17.01	17.04	15.66	13.14	12.60	13.10	12.17	10.58	17.60	14.82	11.85	15.15
Kuching	2020	17.18	19.73	15.64	13.53	13.39	14.40	15.31	20.33	15.99	16.67	13.89	13.70
	2021	11.55	16.90	14.35	18.47	15.73	14.06	16.71	13.37	12.52	15.20	13.77	13.68
	2022	14.54	18.41	16.54	15.93	15.16	11.55	14.45	16.28	15.07	14.73	14.02	17.82
	2023	15.20	15.57	15.30	22.44	20.95	21.30	24.19	33.07	41.68	23.75	15.83	14.00
	2024	14.35	20.16	19.72	15.22	15.35	17.71	23.92	17.18	26.35	18.41	15.71	15.39
Limbang	2020	15.33	19.01	17.33	15.91	14.30	11.20	10.26	13.66	12.06	12.91	11.48	12.35
	2021	11.10	16.52	16.64	17.22	14.52	15.58	16.60	14.40	15.46	19.09	14.41	14.06
	2022	15.57	14.25	14.30	15.35	13.90	13.80	16.70	13.95	12.58	14.17	12.32	12.81
	2023	12.81	15.24	17.61	21.70	19.83	20.59	23.07	22.12	21.69	20.29	13.50	12.40
	2024	15.42	17.94	23.71	15.79	12.48	13.21	15.71	12.09	18.79	15.69	14.88	13.68
Miri	2020	20.73	33.17	22.37	17.34	14.80	19.50	16.24	18.87	17.37	18.43	20.39	18.01
	2021	15.56	26.35	22.18	20.00	16.43	18.99	20.20	16.87	15.94	18.30	15.21	17.66
	2022	19.49	16.79	13.59	15.38	18.61	16.24	17.98	16.41	15.37	14.01	13.61	13.14
	2023	13.85	15.74	18.13	22.01	19.98	21.47	24.33	22.65	21.22	18.33	9.87	11.74
	2024	19.08	22.90	28.71	15.80	14.66	15.62	21.55	14.94	22.15	16.70	16.54	16.49
Mukah	2020	13.87	18.22	15.53	14.58	15.36	14.95	15.27	20.43	16.39	19.12	15.08	15.05
	2021	13.12	15.69	16.44	19.22	17.59	16.87	21.19	19.51	19.41	21.00	17.10	16.28
	2022	16.35	15.84	17.93	17.32	19.02	17.51	22.27	18.99	17.95	14.62	17.64	17.21
	2023	16.05	16.31	19.53	27.31	23.04	23.80	25.72	23.52	26.96	22.45	17.01	14.77
	2024	16.92	20.16	22.00	16.48	16.48	17.43	24.11	17.69	25.24	22.72	16.84	16.80
Samalaju	2020	21.87	29.29	21.97	18.84	16.19	14.94	15.96	18.26	17.76	19.52	17.48	17.51
	2021	17.06	20.59	19.28	23.75	27.30	18.28	23.63	19.30	18.08	20.42	15.47	18.66
	2022	20.61	23.60	19.79	18.93	18.92	19.33	24.22	19.98	21.72	21.07	20.74	22.44
	2023	19.56	25.25	25.44	31.50	28.11	23.60	25.23	24.86	27.83	24.40	18.30	17.46
	2024	23.69	27.17	29.01	21.53	20.54	20.41	25.02	19.02	26.89	22.44	20.21	19.95
Samarahan	2020	14.24	15.74	14.62	14.33	13.26	13.50	13.35	17.02	14.68	14.24	11.86	12.01
	2021	11.82	15.49	14.51	16.99	15.52	15.14	15.67	16.04	15.32	16.11	12.52	14.20
	2022	13.72	14.19	16.46	16.44	17.11	12.79	16.84	17.36	15.58	15.81	13.47	16.77
	2023	14.62	14.45	15.19	20.91	20.30	20.82	26.85	28.65	31.77	25.38	16.46	14.22
	2024	13.82	17.00	19.22	15.66	15.94	15.79	21.22	16.07	24.98	18.08	15.41	15.90
Sarikei	2020	16.78	18.89	15.66	12.93	11.21	11.65	11.28	17.33	14.53	15.26	12.19	12.82
	2021	11.19	14.97	14.04	17.46	13.34	11.17	16.42	13.95	14.01	13.07	19.49	24.20
	2022	25.20	21.82	14.40	14.05	15.39	11.45	14.92	13.70	11.79	11.55	12.70	15.18
	2023	10.61	10.84	14.35	18.07	15.96	15.91	17.77	20.07	23.27	19.62	13.52	12.15
	2024	12.80	15.78	19.76	11.91	15.43	11.61	17.65	11.57	22.47	19.95	13.28	9.53

Jadual 1.27: Purata bulanan kepekatan Habuk Halus (PM₁₀) di udara, Malaysia, 2020-2024 (samb.)Table 1.27: Monthly average concentration of Particulate Matter (PM₁₀) in the air, Malaysia, 2020-2024 (cont'd)µg/m³

Negeri/ Stesen State/ Station	Tahun Year	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Sarawak													
Sibu	2020	18.41	20.48	16.65	12.61	13.07	10.55	13.20	17.23	13.25	14.73	11.21	11.83
	2021	11.34	17.82	15.08	18.44	14.48	14.29	17.46	14.39	13.97	13.88	11.49	11.70
	2022	15.06	16.10	17.29	15.81	15.65	13.47	15.88	15.36	13.55	8.99	9.84	12.96
	2023	15.03	14.05	14.97	19.30	15.65	14.82	17.62	19.81	18.89	19.16	14.89	13.73
	2024	15.23	21.92	21.67	14.75	13.19	13.94	19.86	13.02	21.37	16.16	13.41	12.69
Sri Aman	2020	15.49	18.74	15.85	14.98	13.41	12.91	10.38	18.28	14.83	16.65	11.53	13.42
	2021	10.58	15.69	14.96	17.35	16.98	13.96	17.36	16.02	16.41	15.24	13.15	13.38
	2022	15.76	14.83	15.42	17.82	18.26	14.75	15.40	16.54	13.21	11.42	10.63	12.81
	2023	12.29	13.66	13.40	19.02	16.78	15.93	19.82	29.44	33.11	22.57	14.11	12.34
	2024	13.02	14.76	16.70	12.96	13.29	14.54	17.51	9.05	26.48	15.74	12.19	12.02
Selangor													
Banting	2020	26.45	26.12	26.64	20.12	20.04	18.15	23.45	32.41	25.03	28.99	23.55	24.32
	2021	25.68	35.17	31.07	28.03	32.90	29.17	31.67	22.35	23.03	31.38	25.09	26.88
	2022	34.43	28.07	28.83	30.13	30.81	23.39	30.88	23.26	23.46	23.04	23.36	23.15
	2023	29.43	24.72	26.21	37.60	34.30	36.17	36.81	39.58	38.90	48.93	28.84	28.56
	2024	32.36	36.14	42.80	51.16	36.52	45.14	46.77	38.62	39.72	37.35	33.46	26.74
Klang	2020	38.76	40.15	35.83	26.85	31.43	33.79	32.21	37.66	31.10	34.17	31.66	31.73
	2021	32.02	39.38	35.06	30.26	34.84	27.28	34.46	29.76	29.41	39.74	33.82	44.81
	2022	38.98	31.95	28.37	29.60	26.63	19.29	22.36	26.57	30.98	26.51	29.04	35.06
	2023	32.48	26.69	29.92	37.59	33.65	40.74	35.58	38.45	35.40	48.53	30.53	35.97
	2024	38.39	33.88	35.70	40.46	36.32	33.57	36.57	30.93	22.69	17.24	15.08	31.03
Kuala Selangor	2020	17.61	18.09	21.87	15.86	15.01	19.62	26.64	30.76	22.87	23.13	17.96	19.12
	2021	23.73	31.90	25.48	24.51	27.69	27.76	26.91	20.03	22.11	23.18	17.96	20.76
	2022	21.30	16.60	21.22	25.05	28.95	24.22	33.51	30.27	19.82	20.65	18.88	23.19
	2023	22.97	27.20	30.88	34.00	35.34	44.04	46.05	40.23	39.52	33.32	20.50	19.04
	2024	18.85	23.54	30.22	29.42	30.59	23.26	29.86	23.58	22.81	18.07	16.80	17.65
Petaling Jaya	2020	29.55	35.66	33.31	20.42	23.33	25.76	26.58	24.99	19.05	18.16	33.39	40.50
	2021	36.67	37.30	39.40	36.27	34.30	29.01	32.70	27.60	30.50	32.87	24.88	26.09
	2022	31.99	26.66	29.02	29.15	26.10	23.63	34.28	30.20	34.40	32.82	33.73	25.94
	2023	24.00	24.62	22.67	34.08	31.48	33.46	29.81	32.39	36.98	40.06	24.13	25.29
	2024	24.36	27.94	33.48	35.27	30.53	24.88	26.47	20.47	20.65	21.31	17.12	16.69
Shah Alam	2020	29.57	29.45	27.75	21.31	22.31	25.93	25.69	28.17	23.07	25.20	24.57	26.43
	2021	25.71	33.06	32.02	28.70	29.04	22.53	25.83	22.18	26.80	33.22	31.36	31.41
	2022	36.95	27.75	29.96	33.91	36.42	36.19	44.34	35.59	32.75	27.93	25.10	20.22
	2023	21.98	23.00	24.85	26.73	23.58	26.53	25.06	33.38	40.99	38.05	18.64	17.30
	2024	18.61	18.63	30.22	30.67	27.88	27.93	31.58	25.77	21.99	25.79	25.01	25.87
Terengganu													
Besut	2020	21.01	22.21	20.20	17.43	18.80	16.00	14.38	21.18	19.01	18.38	16.78	15.06
	2021	20.72	25.07	18.19	20.48	17.77	16.41	20.48	16.74	16.93	19.51	14.76	19.48
	2022	25.40	16.60	21.88	21.25	22.02	16.60	20.07	16.44	12.17	11.62	12.41	17.39
	2023	18.96	22.26	22.05	27.48	22.38	23.96	23.96	17.30	23.06	25.16	16.99	17.13
	2024	24.28	22.92	20.30	22.33	22.92	20.60	26.69	16.21	16.58	14.19	11.17	14.75

Jadual 1.27: Purata bulanan kepekatan Habuk Halus (PM₁₀) di udara, Malaysia, 2020-2024 (samb.)Table 1.27: *Monthly average concentration of Particulate Matter (PM₁₀) in the air, Malaysia, 2020-2024 (cont'd)*µg/m³

Negeri/ Stesen State/ Station	Tahun Year	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Terengganu													
Kemaman	2020	23.40	26.84	22.13	17.35	16.17	18.78	17.84	19.00	18.14	19.83	15.05	16.49
	2021	21.15	22.44	14.91	16.39	13.50	16.24	23.64	18.09	19.15	20.24	13.63	18.56
	2022	22.52	16.35	20.44	17.93	20.96	19.98	26.70	21.31	20.47	17.21	17.96	21.03
	2023	23.75	17.00	23.05	32.79	23.66	22.27	24.35	25.17	30.99	28.82	15.21	18.56
	2024	27.83	31.37	27.03	22.49	19.84	19.93	28.67	22.10	22.79	19.46	13.85	18.34
Kuala Terengganu	2020	27.94	27.68	26.83	19.01	21.49	22.75	23.32	27.02	25.18	22.82	15.25	20.32
	2021	29.75	36.48	25.87	25.29	21.81	23.66	26.16	24.40	220.79	23.68	14.99	20.33
	2022	27.57	18.18	24.13	26.47	29.44	23.37	29.85	23.62	18.92	14.24	14.88	17.40
	2023	21.37	26.66	31.82	37.69	27.08	31.05	31.31	27.16	27.07	24.59	13.21	16.54
	2024	28.11	29.97	27.42	25.17	21.77	22.97	32.60	24.70	22.86	24.59	16.83	22.22
Paka	2020	22.07	24.26	16.91	14.35	13.75	16.22	14.50	18.66	16.30	17.42	10.16	14.35
	2021	21.22	23.13	16.04	18.52	15.60	18.84	23.73	19.88	18.63	18.21	13.79	16.16
	2022	19.79	16.40	17.99	20.48	20.15	19.64	25.43	20.71	18.50	14.06	14.17	14.07
	2023	16.52	17.22	21.64	26.14	26.23	29.42	21.48	22.14	24.63	25.64	10.98	13.88
	2024	21.15	21.38	27.74	16.93	22.76	19.40	28.74	24.81	23.12	19.38	11.33	15.35
Wilayah Persekutuan													
Batu Muda,	2020	23.08	23.01	26.97	21.16	32.85	39.73	31.17	36.08	28.00	26.08	22.21	28.77
Kuala Lumpur	2021	23.24	26.52	27.19	26.08	25.12	19.82	20.27	15.85	17.66	18.54	17.37	23.96
	2022	27.49	21.44	24.90	27.57	27.26	24.72	37.20	29.82	32.02	30.05	28.90	34.95
	2023	40.16	28.06	21.75	23.38	28.59	33.01	31.44	31.08	37.34	40.10	27.64	26.12
	2024	24.62	26.17	32.24	33.08	24.28	22.95	24.74	21.81	21.30	17.91	14.53	22.18
Cheras, Kuala Lumpur	2020	25.72	24.08	25.99	18.73	22.00	23.96	22.47	25.00	21.32	18.35	18.60	22.72
	2021	21.61	27.56	28.42	27.00	27.57	25.12	26.25	20.00	20.50	22.89	21.29	19.47
	2022	22.32	22.89	16.22	18.93	18.81	16.75	22.07	27.00	31.77	34.00	34.23	15.89
	2023	19.33	21.47	31.55	39.14	26.66	32.09	27.36	27.17	41.79	42.46	20.88	21.27
	2024	26.19	30.84	34.07	43.92	31.61	26.50	31.93	26.31	26.60	23.35	21.04	19.63
Labuan	2020	18.50	20.94	21.34	20.83	17.54	14.75	14.48	17.12	14.61	21.42	n.a.	14.72
	2021	13.62	19.12	17.24	18.49	18.50	21.30	20.78	20.74	23.58	21.70	21.35	16.38
	2022	19.24	13.59	16.10	16.19	19.60	16.48	18.16	16.44	19.33	12.52	15.02	14.56
	2023	15.62	17.09	17.60	24.27	19.97	15.98	16.10	18.83	21.88	21.92	12.56	13.75
	2024	16.75	20.09	26.42	17.41	17.35	19.25	19.92	15.87	20.14	18.50	18.65	17.49
Putrajaya	2020	22.95	26.03	28.19	21.10	21.98	24.43	23.74	29.63	22.41	25.58	21.17	23.10
	2021	23.98	30.36	27.97	26.15	24.79	21.10	24.83	18.94	19.81	22.20	16.57	19.60
	2022	23.52	16.86	21.45	22.72	22.12	17.90	25.81	23.22	23.43	19.33	18.23	19.10
	2023	21.82	20.28	29.47	35.51	30.23	34.09	34.19	35.07	38.77	38.81	22.42	22.28
	2024	24.50	28.73	38.45	30.54	22.21	23.57	30.66	27.61	22.59	22.30	20.60	23.85

Sumber: Jabatan Alam Sekitar

Source: Department of Environment

Nota/ Notes:

Garis Panduan Kualiti Udara Malaysia: PM₁₀ tidak melebihi 120 µg/m³Malaysian Ambient Air Quality Guidelines: PM₁₀ not exceeding 120 µg/m³**Setiap stesen telah dikelaskan kepada beberapa kategori iaitu industri, urban, rural dan sub-urban. Pengelasan ini menyebabkan terdapat beberapa parameter yang tidak tersedia di stesen-stesen tertentu.***Each station has been classified into several categories, namely industrial, urban, rural, and suburban. This classification has resulted in some parameters being unavailable at certain stations.*

Jadual 1.28: Purata bulanan kepekatan Ozon Permukaan Bumi (O₃) di udara, Malaysia, 2020-2024Table 1.28: *Monthly average concentration of Ground Level Ozone (O₃) in the air, Malaysia, 2020-2024*

ppm

Negeri/ Stesen State/ Station	Tahun Year	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Johor													
Batu Pahat	2020	0.017	0.019	0.021	0.016	0.017	0.013	0.015	0.014	0.015	0.016	0.016	0.018
	2021	0.020	0.025	0.018	0.022	0.017	0.018	0.015	0.014	0.017	0.018	0.016	0.019
	2022	0.019	0.015	0.018	0.019	0.020	0.017	0.014	0.015	0.015	0.015	0.016	0.018
	2023	0.019	0.016	0.018	0.022	0.019	0.016	0.014	0.016	0.020	0.027	0.021	0.015
	2024	0.014	0.017	0.019	0.021	0.021	0.019	0.019	0.017	0.018	0.020	0.017	0.021
Kota Tinggi	2020	0.025	0.027	0.023	0.022	0.021	0.011	0.011	0.014	0.012	0.016	0.014	0.025
	2021	0.031	0.033	0.022	0.020	0.016	0.019	0.017	0.014	0.017	0.019	0.017	0.027
	2022	0.025	0.019	0.020	0.020	0.021	0.017	0.016	0.015	0.016	0.018	0.017	0.024
	2023	0.027	0.025	0.024	0.022	0.021	0.017	0.018	0.018	0.021	0.022	0.023	0.024
	2024	0.025	0.025	0.024	0.019	0.016	0.017	0.024	0.017	0.021	0.023	0.022	0.029
Larkin	2020	0.017	0.019	0.018	0.018	0.016	0.010	0.009	0.012	0.010	0.013	0.011	0.017
	2021	0.019	0.026	0.015	0.018	0.013	0.014	0.014	0.010	0.014	0.015	0.013	0.018
	2022	0.018	0.012	0.013	0.015	0.017	0.012	0.012	0.011	0.012	0.013	0.013	0.015
	2023	0.019	0.016	0.016	0.019	0.016	0.012	0.011	0.012	0.016	0.018	0.015	0.009
	2024	0.012	0.016	0.016	0.015	0.011	0.014	0.016	0.011	0.014	0.014	0.012	0.019
Pasir Gudang	2020	0.018	0.020	0.018	0.018	0.015	0.008	0.008	0.011	0.009	0.011	0.010	0.016
	2021	0.018	0.023	0.014	0.014	0.011	0.012	0.012	0.008	0.011	0.013	0.010	0.014
	2022	0.014	0.010	0.013	0.014	0.014	0.008	0.009	0.009	0.009	0.011	0.011	0.015
	2023	0.019	0.016	0.016	0.018	0.016	0.011	0.011	0.012	0.015	0.016	0.013	0.011
	2024	0.012	0.015	0.015	0.014	0.010	0.012	0.017	0.011	0.013	0.013	0.010	0.018
Segamat	2020	0.018	0.019	0.016	0.015	0.015	0.013	0.013	0.013	0.012	0.015	0.012	0.016
	2021	0.020	0.024	0.015	0.018	0.014	0.016	0.016	0.014	0.015	0.016	0.013	0.017
	2022	0.016	0.012	0.014	0.015	0.016	0.014	0.014	0.015	0.015	0.013	0.012	0.016
	2023	0.017	0.015	0.013	0.010	0.009	0.006	0.010	0.014	0.012	0.014	0.018	0.014
	2024	0.012	0.017	0.019	0.017	0.018	0.018	0.016	0.013	0.013	0.014	0.012	0.014
Tangkak	2020	0.020	0.021	0.017	0.011	0.013	0.012	0.012	0.014	0.013	0.013	0.010	0.014
	2021	0.019	0.022	0.012	0.012	0.012	0.013	0.014	0.011	0.019	0.021	0.019	0.023
	2022	0.023	0.015	0.016	0.014	0.018	0.018	0.018	0.015	0.014	0.011	0.011	0.013
	2023	0.017	0.016	0.014	0.015	0.013	0.011	0.008	0.011	0.014	0.014	0.008	0.007
	2024	0.008	0.011	0.009	0.008	0.008	0.009	0.014	0.013	0.010	0.010	0.007	0.012
Kedah													
Alor Setar	2020	0.024	0.025	0.023	0.021	0.022	0.023	0.020	0.022	0.019	0.014	0.019	0.024
	2021	0.028	0.028	0.020	0.019	0.020	0.021	0.021	0.014	0.014	0.016	0.016	0.027
	2022	0.027	0.018	0.018	0.019	0.016	0.019	0.017	0.020	0.013	0.016	0.018	0.026
	2023	0.026	0.023	0.024	0.021	0.020	0.023	0.018	0.015	0.019	0.016	0.017	0.020
	2024	0.021	0.021	0.023	0.023	0.029	0.021	0.025	0.022	0.014	0.018	0.017	0.027
Langkawi	2020	0.027	0.029	0.022	0.020	0.016	0.016	0.013	0.015	0.012	0.009	0.017	0.025
	2021	0.032	0.030	0.021	0.014	0.013	0.013	0.013	0.011	0.010	0.011	0.012	0.029
	2022	0.030	0.020	0.016	0.013	0.010	0.012	0.012	0.013	0.009	0.011	0.015	0.027
	2023	0.027	0.026	0.026	0.016	0.013	0.013	0.012	0.009	0.013	0.011	0.017	0.023
	2024	0.025	0.023	0.023	0.017	0.018	0.013	0.018	0.015	0.011	0.011	0.016	0.026
Sungai Petani	2020	0.020	0.021	0.023	0.019	0.018	0.021	0.020	0.020	0.017	0.012	0.014	0.018
	2021	0.020	0.023	0.016	0.016	0.018	0.019	0.020	0.015	0.015	0.015	0.012	0.020
	2022	0.022	0.014	0.016	0.015	0.012	0.015	0.018	0.020	0.013	0.013	0.014	0.019
	2023	0.020	0.019	0.025	0.021	0.021	0.020	0.015	0.013	0.016	0.013	0.013	0.013
	2024	0.014	0.017	0.021	0.019	0.023	0.018	0.018	0.017	0.013	0.014	0.012	0.018

Jadual 1.28: Purata bulanan kepekatan Ozon Permukaan Bumi (O₃) di udara, Malaysia, 2020-2024 (samb.)Table 1.28: *Monthly average concentration of Ground Level Ozone (O₃) in the air, Malaysia, 2020-2024 (cont'd)*

ppm

Negeri/ Stesen State/ Station	Tahun Year	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Kelantan													
Kota Bharu	2020	0.015	0.017	0.012	0.012	0.012	0.012	0.011	0.013	0.010	0.009	0.011	0.014
	2021	0.021	0.019	0.011	0.013	0.013	0.014	0.014	0.011	0.010	0.011	0.009	0.018
	2022	0.018	0.014	0.012	0.014	0.013	0.014	0.013	0.015	0.011	0.010	0.011	0.017
	2023	0.020	0.016	0.017	0.017	0.015	0.017	0.014	0.013	0.013	0.013	0.011	0.016
	2024	0.018	0.016	0.015	0.017	0.019	0.015	0.018	0.016	0.012	0.014	0.013	0.020
Tanah Merah	2020	0.011	0.012	0.012	0.011	0.010	0.009	0.010	0.011	0.009	0.008	0.008	0.011
	2021	0.015	0.016	0.009	0.011	0.010	0.011	0.011	0.009	0.008	0.009	0.008	0.013
	2022	0.011	0.009	0.010	0.012	0.010	0.011	0.010	0.012	0.010	0.008	0.009	0.012
	2023	0.015	0.012	0.014	0.016	0.015	0.016	0.014	0.013	0.011	0.009	0.007	0.007
	2024	0.009	0.011	0.011	0.012	0.013	0.011	0.012	0.011	0.009	0.008	0.008	0.012
Melaka													
Bandaraya Melaka	2020	0.022	0.024	0.029	0.026	0.026	0.022	0.020	0.021	0.021	0.024	0.023	0.025
	2021	0.028	0.033	0.025	0.028	0.024	0.024	0.019	0.016	0.017	0.019	0.018	0.020
	2022	0.022	0.016	0.021	0.022	0.020	0.018	0.017	0.018	0.018	0.015	0.018	0.020
	2023	0.020	0.019	0.019	0.024	0.023	0.020	0.019	0.019	0.022	0.028	0.020	0.017
	2024	0.016	0.021	0.023	0.022	0.020	0.021	0.022	0.018	0.018	0.020	0.017	0.022
Bukit Rambai	2020	0.024	0.026	0.027	0.022	0.020	0.015	0.015	0.016	0.016	0.018	0.017	0.020
	2021	0.024	0.030	0.021	0.024	0.019	0.020	0.018	0.015	0.016	0.019	0.019	0.021
	2022	0.023	0.016	0.020	0.020	0.018	0.016	0.015	0.016	0.017	0.015	0.018	0.021
	2023	0.022	0.020	0.022	0.026	0.023	0.019	0.018	0.017	0.022	0.027	0.020	0.016
	2024	0.015	0.021	0.023	0.021	0.018	0.019	0.017	0.014	0.015	0.017	0.013	0.017
Negeri Sembilan													
Nilai	2020	0.011	0.011	0.012	0.010	0.009	0.006	0.006	0.006	0.006	0.007	0.007	0.008
	2021	0.010	0.014	0.006	0.005	0.006	0.007	0.007	0.006	0.006	0.007	0.007	0.007
	2022	0.009	0.007	0.008	0.008	0.008	0.004	0.004	0.013	0.016	0.012	0.014	0.015
	2023	0.015	0.016	0.019	0.020	0.016	0.015	0.013	0.015	0.017	0.020	0.016	0.013
	2024	0.013	0.016	0.017	0.013	0.008	0.016	0.017	0.016	0.016	0.019	0.015	0.016
Port Dickson	2020	0.029	0.023	0.022	0.019	0.018	0.017	0.016	0.017	0.016	0.017	0.016	0.019
	2021	0.021	0.032	0.027	0.029	0.025	0.025	0.025	0.022	0.023	0.024	0.024	0.026
	2022	0.031	0.025	0.030	0.029	0.027	0.025	0.025	0.025	0.024	0.022	0.029	0.028
	2023	0.028	0.028	0.028	0.032	0.029	0.027	0.025	0.024	0.027	0.034	0.027	0.021
	2024	0.023	0.026	0.030	0.029	0.025	0.024	0.024	0.024	0.025	0.021	0.017	0.019
Seremban	2020	0.021	0.022	0.024	0.020	0.023	0.018	0.018	0.018	0.017	0.018	0.016	0.018
	2021	0.021	0.028	0.021	0.023	0.021	0.020	0.019	0.018	0.020	0.021	0.022	0.020
	2022	0.024	0.019	0.024	0.025	0.023	0.019	0.019	0.019	0.018	0.017	0.018	0.018
	2023	0.018	0.017	0.019	0.024	0.019	0.018	0.015	0.015	0.021	0.026	0.014	0.008
	2024	0.008	0.010	0.012	0.011	0.013	0.022	0.021	0.021	0.019	0.022	0.017	0.019
Pahang													
Jerantut	2020	0.013	0.014	0.017	0.014	0.016	0.017	0.016	0.020	0.017	0.016	0.011	0.013
	2021	0.015	0.019	0.014	0.017	0.016	0.017	0.018	0.017	0.015	0.016	0.011	0.014
	2022	0.016	0.010	0.013	0.015	0.016	0.017	0.019	0.017	0.016	0.012	0.012	0.013
	2023	0.013	0.012	0.015	0.019	0.018	0.021	0.019	0.020	0.019	0.018	0.010	0.009
	2024	0.009	0.011	0.014	0.017	0.019	0.018	0.023	0.021	0.018	0.017	0.011	0.014

Jadual 1.28: Purata bulanan kepekatan Ozon Permukaan Bumi (O₃) di udara, Malaysia, 2020-2024 (samb.)Table 1.28: *Monthly average concentration of Ground Level Ozone (O₃) in the air, Malaysia, 2020-2024 (cont'd)*

ppm

Negeri/ Stesen State/ Station	Tahun Year	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Pahang													
Kuantan	2020	0.019	0.022	0.019	0.017	0.020	0.017	0.017	0.022	0.019	0.022	0.015	0.019
	2021	0.024	0.026	0.016	0.021	0.019	0.022	0.024	0.020	0.019	0.021	0.015	0.022
	2022	0.022	0.014	0.016	0.018	0.021	0.022	0.024	0.021	0.021	0.015	0.016	0.020
	2023	0.023	0.019	0.019	0.023	0.023	0.025	0.023	0.023	0.023	0.023	0.014	0.016
	2024	0.017	0.018	0.019	0.018	0.020	0.020	0.025	0.022	0.023	0.023	0.016	0.021
Temerloh	2020	0.013	0.014	0.017	0.014	0.015	0.016	0.016	0.017	0.016	0.016	0.010	0.012
	2021	0.014	0.018	0.013	0.016	0.014	0.015	0.015	0.015	0.015	0.016	0.010	0.012
	2022	0.012	0.008	0.012	0.013	0.013	0.014	0.015	0.015	0.013	0.010	0.011	0.011
	2023	0.011	0.011	0.013	0.016	0.016	0.017	0.016	0.016	0.016	0.018	0.010	0.007
	2024	0.007	0.010	0.013	0.015	0.016	0.016	0.016	0.016	0.016	0.016	0.010	0.011
Perak													
Pegoh, Ipoh	2020	0.027	0.025	0.024	0.021	0.019	0.021	0.020	0.022	0.016	0.014	0.013	0.014
	2021	0.016	0.023	0.017	0.015	0.014	0.015	0.018	0.015	0.014	0.014	0.011	0.014
	2022	0.017	0.012	0.014	0.014	0.014	0.012	0.012	0.008	0.009	0.004	0.007	0.007
	2023	0.010	0.010	0.012	0.011	0.012	0.012	0.010	0.009	0.010	0.006	0.005	0.008
	2024	0.010	0.011	0.013	0.011	0.013	0.010	0.011	0.010	0.010	0.010	0.014	0.017
Taiping	2020	0.017	0.019	0.020	0.018	0.017	0.018	0.017	0.021	0.014	0.013	0.014	0.015
	2021	0.015	0.020	0.018	0.016	0.017	0.016	0.019	0.015	0.016	0.015	0.013	0.015
	2022	0.017	0.015	0.016	0.016	0.014	0.014	0.015	0.015	0.010	0.008	0.009	0.009
	2023	0.011	0.012	0.013	0.013	0.017	0.019	0.018	0.017	0.019	0.019	0.017	0.016
	2024	0.017	0.022	0.024	0.019	0.024	0.018	0.020	0.019	0.017	0.016	0.014	0.017
Tanjung Malim	2020	0.019	0.020	0.019	0.014	0.018	0.021	0.018	0.023	0.017	0.016	0.014	0.014
	2021	0.015	0.021	0.017	0.017	0.017	0.018	0.021	0.018	0.017	0.018	0.014	0.015
	2022	0.017	0.014	0.016	0.017	0.018	0.017	0.021	0.018	0.016	0.015	0.016	0.015
	2023	0.016	0.015	0.016	0.018	0.017	0.022	0.019	0.019	0.022	0.020	0.014	0.013
	2024	0.014	0.016	0.019	0.018	0.026	0.024	0.030	0.025	0.024	0.023	0.016	0.015
Tasek, Ipoh	2020	0.020	0.021	0.025	0.020	0.015	0.018	0.026	0.024	0.028	0.018	0.015	0.018
	2021	0.023	0.023	0.024	0.020	0.021	0.021	0.019	0.023	0.017	0.015	0.016	0.016
	2022	0.018	0.025	0.021	0.018	0.020	0.019	0.021	0.016	0.017	0.017	0.013	0.015
	2023	0.016	0.010	0.020	0.021	0.020	0.022	0.020	0.019	0.018	0.018	0.013	0.013
	2024	0.017	0.020	0.024	0.019	0.022	0.019	0.023	0.021	0.018	0.018	0.014	0.016
Perlis													
Kangar	2020	0.028	0.025	0.030	0.024	0.021	0.025	0.025	0.022	0.024	0.018	0.022	0.030
	2021	0.026	0.027	0.024	0.022	0.022	0.022	0.019	0.020	0.018	0.015	0.020	0.025
	2022	0.031	0.031	0.021	0.020	0.020	0.021	0.019	0.015	0.014	0.018	0.018	0.030
	2023	0.028	0.025	0.027	0.023	0.021	0.022	0.019	0.015	0.020	0.018	0.019	0.024
	2024	0.025	0.024	0.024	0.024	0.027	0.022	0.025	0.021	0.015	0.018	0.019	0.029
Pulau Pinang													
Balik Pulau	2020	0.030	0.029	0.030	0.023	0.019	0.026	0.030	0.027	0.028	0.021	0.021	0.030
	2021	0.028	0.029	0.026	0.023	0.022	0.025	0.025	0.026	0.020	0.016	0.019	0.025
	2022	0.030	0.033	0.026	0.020	0.022	0.021	0.023	0.019	0.018	0.019	0.017	0.026
	2023	0.026	0.023	0.027	0.022	0.021	0.023	0.021	0.018	0.016	0.014	0.019	0.022
	2024	0.025	0.027	0.028	0.021	0.029	0.022	0.027	0.023	0.017	0.016	0.017	0.027

Jadual 1.28: Purata bulanan kepekatan Ozon Permukaan Bumi (O₃) di udara, Malaysia, 2020-2024 (samb.)Table 1.28: Monthly average concentration of Ground Level Ozone (O₃) in the air, Malaysia, 2020-2024 (cont'd)

ppm

Negeri/ Stesen State/ Station	Tahun Year	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Pulau Pinang													
Perai	2020	0.021	0.021	0.023	0.017	0.012	0.019	0.023	0.020	0.020	0.014	0.014	0.022
	2021	0.021	0.021	0.020	0.015	0.013	0.014	0.013	0.013	0.008	0.006	0.006	0.009
	2022	0.010	0.012	0.009	0.007	0.011	0.009	0.009	0.006	0.005	0.005	0.004	0.006
	2023	0.023	0.022	0.025	0.019	0.018	0.018	0.014	0.009	0.010	0.007	0.006	0.006
	2024	0.008	0.011	0.011	0.007	0.010	0.007	0.008	0.007	0.005	0.005	0.005	0.007
Seberang Jaya	2020	0.019	0.020	0.021	0.014	0.011	0.019	0.023	0.021	0.020	0.012	0.013	0.017
	2021	0.019	0.021	0.022	0.019	0.016	0.020	0.019	0.020	0.014	0.010	0.012	0.015
	2022	0.017	0.024	0.018	0.013	0.015	0.015	0.018	0.012	0.012	0.012	0.009	0.014
	2023	0.016	0.011	0.022	0.017	0.016	0.017	0.015	0.013	0.016	0.013	0.010	0.013
	2024	0.016	0.023	0.023	0.018	0.023	0.016	0.020	0.017	0.012	0.011	0.010	0.017
USM	2020	0.029	0.030	0.034	0.026	0.020	0.026	0.030	0.027	0.026	0.019	0.020	0.027
	2021	0.029	0.030	0.031	0.026	0.024	0.027	0.025	0.029	0.020	0.016	0.019	0.025
	2022	0.029	0.034	0.028	0.023	0.023	0.024	0.027	0.021	0.020	0.020	0.017	0.024
	2023	0.027	0.026	0.029	0.025	0.022	0.025	0.023	0.020	0.024	0.019	0.019	0.020
	2024	0.023	0.028	0.030	0.025	0.030	0.024	0.028	0.024	0.019	0.017	0.017	0.026
Sabah													
Keningau	2020	0.013	0.015	0.016	0.012	0.011	0.008	0.008	0.012	0.013	0.007	0.010	0.010
	2021	0.010	0.013	0.011	0.013	0.008	0.006	0.005	0.008	0.006	0.008	0.008	0.008
	2022	0.009	0.011	0.009	0.012	0.008	0.007	0.009	0.008	0.007	0.009	0.007	0.009
	2023	0.010	0.011	0.013	0.014	0.012	0.011	0.010	0.011	0.011	0.010	0.010	0.010
	2024	0.011	0.012	0.015	0.014	0.011	0.007	0.010	0.009	0.010	0.011	0.008	0.006
Kota Kinabalu	2020	0.013	0.015	0.014	0.016	0.012	0.011	0.009	0.013	0.010	0.013	0.013	0.013
	2021	0.012	0.015	0.013	0.016	0.011	0.012	0.014	0.012	0.011	0.012	0.009	0.011
	2022	0.011	0.010	0.009	0.012	0.011	0.009	0.010	0.009	0.010	0.010	0.008	0.012
	2023	0.008	0.009	0.010	0.012	0.011	0.011	0.010	0.010	0.010	0.009	0.009	0.009
	2024	0.010	0.012	0.013	0.011	0.009	0.009	0.010	0.008	0.012	0.012	0.009	0.010
Sandakan	2020	0.020	0.024	0.019	0.020	0.013	0.010	0.009	0.012	0.009	0.012	0.014	0.013
	2021	0.015	0.020	0.015	0.018	0.014	0.013	0.014	0.011	0.011	0.012	0.011	0.018
	2022	0.018	0.016	0.011	0.014	0.012	0.010	0.011	0.011	0.012	0.011	0.012	0.015
	2023	0.016	0.018	0.023	0.018	0.018	0.015	0.014	0.015	0.014	0.013	0.012	0.015
	2024	0.021	0.023	0.021	0.015	0.012	0.011	0.013	0.011	0.015	0.014	0.011	0.013
Tawau	2020	0.012	0.016	0.013	0.015	0.010	0.008	0.007	0.009	0.008	0.010	0.009	0.010
	2021	0.009	0.012	0.011	0.013	0.010	0.009	0.010	0.008	0.009	0.009	0.008	0.010
	2022	0.011	0.010	0.009	0.010	0.008	0.008	0.010	0.009	0.009	0.009	0.009	0.010
	2023	0.010	0.010	0.013	0.013	0.014	0.012	0.011	0.012	0.014	0.012	0.010	0.010
	2024	0.012	0.014	0.014	0.010	0.009	0.009	0.011	0.009	0.013	0.011	0.007	0.009
Sarawak													
Bintulu	2020	0.016	0.019	0.015	0.016	0.012	0.010	0.011	0.012	0.009	0.010	0.011	0.010
	2021	0.015	0.017	0.014	0.018	0.014	0.013	0.012	0.010	0.010	0.009	0.009	0.011
	2022	0.012	0.011	0.011	0.011	0.011	0.012	0.014	0.013	0.012	0.011	0.012	0.014
	2023	0.012	0.010	0.014	0.013	0.009	0.007	0.006	0.007	0.006	0.006	0.006	0.005
	2024	0.005	0.007	0.009	0.009	0.007	0.006	0.007	0.005	0.005	0.007	0.015	0.015

Jadual 1.28: Purata bulanan kepekatan Ozon Permukaan Bumi (O₃) di udara, Malaysia, 2020-2024 (samb.)

Table 1.28: Monthly average concentration of Ground Level Ozone (O₃) in the air, Malaysia, 2020-2024 (cont'd)

ppm

Negeri/ Stesen State/ Station	Tahun Year	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Sarawak													
Kuching	2020	0.012	0.015	0.011	0.012	0.010	0.008	0.009	0.011	0.009	0.009	0.010	0.013
	2021	0.015	0.015	0.011	0.013	0.011	0.010	0.011	0.009	0.010	0.012	0.012	0.016
	2022	0.014	0.013	0.013	0.014	0.012	0.011	0.012	0.012	0.011	0.010	0.011	0.014
	2023	0.013	0.012	0.012	0.015	0.012	0.012	0.012	0.015	0.014	0.013	0.013	0.014
	2024	0.012	0.009	0.012	0.009	0.009	0.011	0.012	0.010	0.015	0.013	0.012	0.013
Miri	2020	0.017	0.022	0.017	0.019	0.016	0.013	0.012	0.015	0.012	0.014	0.016	0.016
	2021	0.014	0.018	0.015	0.017	0.016	0.014	0.015	0.013	0.014	0.016	0.013	0.015
	2022	0.015	0.014	0.013	0.014	0.013	0.013	0.014	0.014	0.014	0.014	0.013	0.015
	2023	0.013	0.013	0.016	0.017	0.014	0.014	0.014	0.014	0.014	0.013	0.013	0.012
	2024	0.015	0.017	0.019	0.014	0.014	0.013	0.014	0.011	0.015	0.014	0.013	0.014
Sibu	2020	0.011	0.015	0.011	0.011	0.010	0.008	0.008	0.010	0.008	0.010	0.009	0.009
	2021	0.012	0.014	0.010	0.012	0.011	0.010	0.010	0.008	0.009	0.009	0.010	0.011
	2022	0.011	0.010	0.010	0.010	0.012	0.008	0.010	0.009	0.008	0.009	0.011	0.012
	2023	0.010	0.010	0.012	0.012	0.010	0.008	0.008	0.010	0.009	0.009	0.009	0.009
	2024	0.009	0.010	0.010	0.009	0.007	0.008	0.008	0.007	0.010	0.010	0.009	0.013
Selangor													
Banting	2020	0.023	0.023	0.021	0.020	0.016	0.012	0.015	0.015	0.016	0.016	0.018	0.018
	2021	0.022	0.029	0.022	0.021	0.017	0.017	0.015	0.016	0.016	0.015	0.015	0.017
	2022	0.025	0.019	0.022	0.025	0.022	0.020	0.017	0.019	0.018	0.016	0.020	0.021
	2023	0.021	0.023	0.024	0.026	0.019	0.016	0.015	0.015	0.018	0.024	0.020	0.016
	2024	0.018	0.021	0.024	0.023	0.020	0.018	0.018	0.016	0.017	0.017	0.017	0.019
Klang	2020	0.014	0.018	0.022	0.024	0.018	0.011	0.012	0.015	0.015	0.015	0.014	0.015
	2021	0.019	0.024	0.018	0.015	0.015	0.015	0.014	0.013	0.017	0.015	0.014	0.016
	2022	0.021	0.016	0.017	0.016	0.015	0.014	0.016	0.016	0.014	0.013	0.013	0.014
	2023	0.017	0.017	0.019	0.019	0.014	0.015	0.013	0.013	0.018	0.018	0.013	0.011
	2024	0.015	0.019	0.021	0.018	0.017	0.014	0.017	0.014	0.014	0.015	0.013	0.014
Petaling Jaya	2020	0.010	0.011	0.014	0.016	0.013	0.008	0.008	0.010	0.007	0.007	0.004	0.005
	2021	0.006	0.010	0.005	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.008	0.014
	2022	0.014	0.010	0.014	0.016	0.014	0.013	0.014	0.017	0.016	0.013	0.012	0.014
	2023	0.016	0.015	0.019	0.019	0.017	0.016	0.015	0.015	0.018	0.020	0.015	0.013
	2024	0.014	0.019	0.023	0.021	0.020	0.017	0.018	0.016	0.015	0.016	0.012	0.014
Shah Alam	2020	0.023	0.024	0.025	0.029	0.023	0.016	0.017	0.018	0.017	0.017	0.017	0.018
	2021	0.021	0.029	0.024	0.022	0.020	0.019	0.017	0.017	0.018	0.018	0.015	0.020
	2022	0.022	0.015	0.020	0.021	0.019	0.017	0.017	0.017	0.017	0.014	0.015	0.015
	2023	0.019	0.020	0.023	0.025	0.020	0.018	0.014	0.015	0.018	0.021	0.016	0.012
	2024	0.014	0.018	0.021	0.018	0.016	0.014	0.014	0.013	0.012	0.015	0.012	0.013
Terengganu													
Besut	2020	0.021	0.023	0.017	0.014	0.014	0.015	0.015	0.016	0.012	0.011	0.012	0.015
	2021	0.020	0.018	0.012	0.014	0.014	0.014	0.015	0.010	0.011	0.011	0.011	0.020
	2022	0.020	0.014	0.012	0.015	0.013	0.015	0.015	0.016	0.013	0.011	0.013	0.019
	2023	0.022	0.017	0.016	0.018	0.016	0.017	0.015	0.015	0.014	0.013	0.012	0.017
	2024	0.018	0.015	0.014	0.016	0.017	0.015	0.021	0.020	0.017	0.016	0.015	0.022

Jadual 1.28: Purata bulanan kepekatan Ozon Permukaan Bumi (O₃) di udara, Malaysia, 2020-2024 (samb.)Table 1.28: Monthly average concentration of Ground Level Ozone (O₃) in the air, Malaysia, 2020-2024 (cont'd)

ppm

Negeri/ Stesen State/ Station	Tahun Year	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Terengganu													
Kuala Terengganu	2020	0.015	0.018	0.012	0.015	0.017	0.013	0.012	0.015	0.013	0.012	0.011	0.016
	2021	0.021	0.017	0.011	0.012	0.012	0.014	0.014	0.012	0.012	0.011	0.009	0.019
	2022	0.016	0.012	0.011	0.012	0.013	0.014	0.014	0.014	0.014	0.010	0.011	0.017
	2023	0.021	0.017	0.015	0.015	0.014	0.015	0.015	0.014	0.014	0.013	0.011	0.014
	2024	0.017	0.013	0.012	0.013	0.014	0.010	0.013	0.010	0.010	0.009	0.008	0.020
Wilayah Persekutuan													
Batu Muda, Kuala Lumpur	2020	0.017	0.018	0.021	0.016	0.014	0.014	0.015	0.018	0.015	0.016	0.012	0.013
	2021	0.016	0.024	0.019	0.016	0.018	0.019	0.018	0.016	0.016	0.015	0.012	0.013
	2022	0.013	0.012	0.016	0.016	0.014	0.012	0.014	0.010	0.004	0.009	0.010	0.010
	2023	0.013	0.011	0.014	0.013	0.015	0.016	0.013	0.012	0.016	0.020	0.012	0.008
	2024	0.008	0.012	0.011	0.013	0.012	0.011	0.010	0.007	0.005	0.004	0.003	0.004
Cheras, Kuala Lumpur	2020	0.022	0.022	0.025	0.022	0.022	0.017	0.017	0.019	0.016	0.018	0.015	0.016
	2021	0.019	0.028	0.021	0.019	0.019	0.021	0.021	0.019	0.019	0.018	0.017	0.018
	2022	0.021	0.015	0.021	0.021	0.020	0.018	0.021	0.021	0.018	0.016	0.016	0.017
	2023	0.019	0.019	0.024	0.026	0.022	0.021	0.019	0.018	0.023	0.025	0.017	0.015
	2024	0.015	0.020	0.024	0.022	0.023	0.022	0.025	0.022	0.022	0.022	0.013	0.019
Labuan	2020	0.019	0.023	0.018	0.018	0.013	0.012	0.012	0.015	0.013	0.015	0.015	0.016
	2021	0.016	0.018	0.014	0.015	0.014	0.014	0.016	0.014	0.013	0.015	0.014	0.017
	2022	0.018	0.016	0.013	0.015	0.015	0.014	0.014	0.013	0.016	0.017	0.016	0.020
	2023	0.015	0.016	0.021	0.018	0.017	0.017	0.016	0.016	0.017	0.015	0.017	0.018
	2024	0.019	0.021	0.024	0.020	0.018	0.015	0.016	0.014	0.019	0.019	0.015	0.017
Putrajaya	2020	0.026	0.027	0.029	0.026	0.025	0.019	0.017	0.018	0.017	0.018	0.018	0.019
	2021	0.023	0.031	0.023	0.021	0.019	0.019	0.018	0.018	0.018	0.018	0.018	0.019
	2022	0.023	0.016	0.021	0.021	0.020	0.018	0.017	0.021	0.019	0.015	0.018	0.018
	2023	0.021	0.021	0.023	0.026	0.021	0.020	0.020	0.023	0.028	0.030	0.022	0.017
	2024	0.019	0.023	0.027	0.024	0.021	0.021	0.021	0.019	0.018	0.020	0.017	0.019

Sumber: Jabatan Alam Sekitar
Source: Department of Environment

Nota/ Notes:

Garis Panduan Kualiti Udara Malaysia: O₃ tidak melebihi 0.1 ppm
Malaysian Ambient Air Quality Guidelines: O₃ not exceeding 0.1 ppm

Setiap stesen telah dikelaskan kepada beberapa kategori iaitu industri, urban, rural dan sub-urban. Pengelasan ini menyebabkan terdapat beberapa parameter yang tidak tersedia di stesen-stesen tertentu.

Each station has been classified into several categories, namely industrial, urban, rural, and suburban. This classification has resulted in some parameters being unavailable at certain stations.

Jadual 1.29: Purata bulanan kepekatan Karbon Monoksida (CO) di udara, Malaysia, 2020-2024Table 1.29: *Monthly average concentration of Carbon Monoxide (CO) in the air, Malaysia, 2020-2024*

ppm

Negeri/ Stesen State/ Station	Tahun Year	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Johor													
Batu Pahat	2020	0.550	0.516	0.541	0.515	0.498	0.450	0.498	0.483	0.410	0.646	0.566	0.573
	2021	0.481	0.554	0.553	0.604	0.502	0.508	0.544	0.590	0.571	0.551	0.356	0.429
	2022	0.500	0.442	0.416	0.481	0.503	0.450	0.477	0.452	0.476	0.412	0.453	0.499
	2023	0.492	0.321	0.333	0.540	0.466	0.342	0.402	0.448	0.539	0.613	0.437	0.382
	2024	0.427	0.465	0.469	0.533	0.337	0.385	0.551	0.547	0.572	0.459	0.360	0.353
Kota Tinggi	2020	0.429	0.372	0.438	0.455	0.539	0.418	0.510	0.516	0.489	0.520	0.398	0.412
	2021	0.427	0.397	0.351	0.492	0.466	0.368	0.326	0.313	0.432	0.400	0.398	0.263
	2022	0.311	0.269	0.301	0.413	0.316	0.303	0.294	0.289	0.431	0.439	0.418	0.440
	2023	0.629	0.540	0.504	0.716	0.421	0.527	0.477	0.440	0.591	0.624	0.453	0.478
	2024	0.364	0.388	0.505	0.353	0.434	0.477	0.562	0.494	0.481	0.496	0.410	0.493
Larkin	2020	0.355	0.375	0.372	0.328	0.356	0.509	0.350	0.371	0.353	0.400	0.317	0.267
	2021	0.217	0.189	0.280	0.381	0.412	0.571	0.503	0.506	0.450	0.396	0.680	0.558
	2022	0.579	0.532	0.625	0.706	0.640	0.766	0.645	0.700	0.723	0.656	0.610	0.586
	2023	0.572	0.491	0.557	0.770	0.728	0.765	0.635	0.744	0.768	0.865	0.490	0.615
	2024	0.530	0.414	0.511	0.707	0.848	0.754	0.724	0.580	0.542	0.853	0.508	0.533
Pasir Gudang	2020	0.410	0.511	0.503	0.449	0.584	0.688	0.588	0.594	0.629	0.638	0.700	0.650
	2021	0.513	0.566	0.610	0.764	0.679	0.578	0.460	0.549	0.505	0.491	0.587	0.554
	2022	0.446	0.327	0.365	0.486	0.589	0.576	0.503	0.524	0.592	0.588	0.704	0.604
	2023	0.579	0.601	0.629	0.569	0.593	0.836	0.706	0.748	0.768	0.631	0.609	0.654
	2024	0.562	0.533	0.682	0.632	0.798	0.832	0.509	0.617	0.763	0.806	0.698	0.639
Segamat	2020	0.637	0.643	0.540	0.520	0.487	0.550	0.517	0.585	0.499	0.448	0.685	0.635
	2021	0.660	0.562	0.625	0.615	0.627	0.578	0.670	0.527	0.612	0.584	0.544	0.652
	2022	0.482	0.538	0.581	0.588	0.550	0.645	0.608	0.575	0.573	0.608	0.529	0.531
	2023	0.615	0.553	0.585	0.621	0.498	0.723	0.482	0.644	0.691	0.574	0.476	0.586
	2024	0.732	0.561	0.720	0.833	0.875	0.767	0.341	0.890	0.956	0.894	0.596	0.348
Tangkak	2020	0.644	0.585	0.685	0.520	0.539	0.480	0.361	0.479	0.304	0.293	0.371	0.517
	2021	0.633	0.681	0.620	0.644	0.581	0.699	0.417	0.543	0.562	0.682	0.606	0.547
	2022	0.539	0.536	0.639	0.623	0.511	0.335	0.543	0.493	0.601	0.522	0.509	0.624
	2023	0.595	0.488	0.548	0.706	0.698	0.676	0.610	0.618	0.737	0.691	0.685	0.612
	2024	0.620	0.705	0.768	0.768	0.681	0.668	0.472	0.527	0.447	0.293	0.396	0.736
Kedah													
Alor Setar	2020	0.330	0.356	0.510	0.443	0.401	0.403	0.482	0.463	0.435	0.460	0.447	0.530
	2021	0.463	0.428	0.404	0.476	0.386	0.378	0.427	0.351	0.398	0.459	0.483	0.394
	2022	0.407	0.294	0.395	0.504	0.444	0.441	0.582	0.444	0.462	0.463	0.463	0.433
	2023	0.459	0.461	0.472	0.604	0.451	0.395	0.418	0.513	0.610	0.368	0.441	0.441
	2024	0.442	0.453	0.527	0.428	0.385	0.415	0.500	0.353	0.351	0.390	0.280	0.413
Langkawi	2020	0.310	0.302	0.365	0.304	0.260	0.361	0.375	0.498	0.442	0.508	0.415	0.350
	2021	0.330	0.403	0.384	0.482	0.383	0.376	0.395	0.344	0.370	0.416	0.469	0.452
	2022	0.497	0.397	0.501	0.454	0.386	0.415	0.506	0.474	0.416	0.466	0.487	0.412
	2023	0.460	0.450	0.491	0.540	0.460	0.354	0.491	0.450	0.601	0.426	0.472	0.497
	2024	0.490	0.362	0.434	0.501	0.477	0.510	0.540	0.493	0.452	0.544	0.563	0.625
Sungai Petani	2020	0.493	0.599	0.381	0.341	0.359	0.549	0.568	0.621	0.476	0.593	0.606	0.613
	2021	0.544	0.570	0.635	0.628	0.622	0.544	0.525	0.560	0.578	0.636	0.612	0.679
	2022	0.623	0.512	0.482	0.657	0.596	0.563	0.694	0.670	0.592	0.657	0.671	0.539
	2023	0.605	0.632	0.590	0.718	0.663	0.680	0.655	0.597	0.711	0.759	0.667	0.719
	2024	0.605	0.628	0.764	0.708	0.601	0.621	0.785	0.667	0.633	0.566	0.501	0.449

Jadual 1.29: Purata bulanan kepekatan Karbon Monoksida (CO) di udara, Malaysia, 2020-2024 (samb.)Table 1.29: *Monthly average concentration of Carbon Monoxide (CO) in the air, Malaysia, 2020-2024 (cont'd)*

ppm

Negeri/ Stesen State/ Station	Tahun Year	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Kelantan													
Kota Bharu	2020	0.420	0.420	0.414	0.351	0.378	0.397	0.506	0.557	0.464	0.396	0.463	0.708
	2021	0.450	0.449	0.586	0.261	0.295	0.213	0.328	0.355	0.330	0.345	0.313	0.456
	2022	0.487	0.302	0.335	0.426	0.553	0.563	0.545	0.670	0.773	0.813	0.804	0.739
	2023	0.721	0.617	0.488	0.653	0.743	0.726	0.784	0.454	0.886	0.852	0.846	0.762
	2024	0.702	0.813	0.797	0.790	0.917	0.860	0.739	0.684	0.681	0.570	0.698	0.902
Tanah Merah	2020	0.708	0.620	0.628	0.602	0.449	0.514	0.527	0.546	0.607	0.500	0.643	0.840
	2021	0.728	0.757	0.809	0.719	0.568	0.492	0.466	0.411	0.681	0.680	0.687	0.814
	2022	0.919	0.601	0.756	0.641	0.684	0.594	0.718	0.560	0.467	0.696	0.593	0.749
	2023	0.727	0.865	0.989	0.986	0.918	0.700	0.782	0.699	0.858	0.840	1.035	1.000
	2024	0.927	1.014	0.977	0.903	0.844	0.842	0.851	0.548	0.573	0.724	0.771	0.948
Melaka													
Bandaraya Melaka	2020	0.484	0.410	0.525	0.469	0.549	0.632	0.619	0.472	0.580	0.447	0.425	0.740
	2021	0.564	0.498	0.453	0.628	0.422	0.459	0.575	0.677	0.647	0.636	0.605	0.396
	2022	0.522	0.609	0.744	0.676	0.585	0.450	0.628	0.640	0.692	0.767	0.645	0.641
	2023	0.808	0.838	0.849	0.794	0.602	0.765	0.912	0.865	0.865	0.924	0.502	0.366
	2024	0.571	0.739	0.495	0.565	0.516	0.594	0.453	0.487	0.666	0.348	0.253	0.330
Bukit Rambai	2020	0.424	0.500	0.483	0.428	0.566	0.654	0.586	1.021	1.041	1.029	0.925	0.981
	2021	0.689	0.701	0.597	0.570	0.482	0.555	0.614	0.670	0.796	0.689	0.628	0.757
	2022	0.572	0.568	0.710	0.816	0.787	0.793	0.585	0.740	0.643	0.467	0.367	0.524
	2023	0.808	0.838	0.849	0.794	0.602	0.765	0.912	0.865	0.865	0.924	0.502	0.366
	2024	0.633	0.595	0.546	0.499	0.389	0.371	0.383	0.357	0.396	0.443	0.339	0.345
Negeri Sembilan													
Nilai	2020	0.654	0.468	0.458	0.372	0.486	0.616	0.559	0.511	0.434	0.533	0.566	0.670
	2021	0.505	0.500	0.532	0.607	0.522	0.471	0.466	0.435	0.492	0.582	0.486	0.427
	2022	0.646	0.467	0.492	0.581	0.605	0.728	0.752	0.684	0.619	0.536	0.623	0.481
	2023	0.574	0.432	0.495	0.657	0.615	0.591	0.543	0.571	0.597	0.674	0.532	0.550
	2024	0.385	0.385	0.499	0.565	0.755	0.524	0.594	0.493	0.523	0.633	0.641	0.667
Port Dickson	2020	0.485	0.492	0.558	0.495	0.537	0.476	0.519	0.448	0.436	0.362	0.305	0.336
	2021	0.329	0.333	0.462	0.505	0.526	0.459	0.487	0.478	0.484	0.475	0.542	0.556
	2022	0.480	0.507	0.549	0.500	0.589	0.556	0.574	0.522	0.561	0.495	0.443	0.583
	2023	0.600	0.540	0.528	0.570	0.507	0.499	0.544	0.547	0.682	0.782	0.639	0.625
	2024	0.636	0.498	0.639	0.631	0.504	0.550	0.605	0.506	0.542	0.533	0.394	0.432
Seremban	2020	0.542	0.548	0.547	0.503	0.527	0.570	0.588	0.588	0.585	0.532	0.525	0.679
	2021	0.601	0.612	0.532	0.584	0.529	0.608	0.617	0.527	0.651	0.671	0.671	0.638
	2022	0.622	0.560	0.617	0.611	0.612	0.614	0.661	0.621	0.612	0.600	0.589	0.603
	2023	0.666	0.599	0.593	0.651	0.592	0.549	0.603	0.568	0.495	0.562	0.613	0.604
	2024	0.571	0.390	0.360	0.349	0.354	0.546	0.515	0.525	0.529	0.546	0.539	0.641
Pahang													
Jerantut	2020	0.310	0.352	0.336	0.362	0.364	0.311	0.311	0.391	0.395	0.319	0.311	0.332
	2021	0.375	0.349	0.326	0.340	0.348	0.377	0.354	0.350	0.348	0.408	0.300	0.297
	2022	0.254	0.304	0.353	0.398	0.433	0.297	0.407	0.440	0.518	0.347	0.323	0.336
	2023	0.319	0.373	0.424	0.555	0.474	0.366	0.468	0.397	0.409	0.454	0.560	0.380
	2024	0.458	0.468	0.454	0.367	0.353	0.470	0.526	0.423	0.592	0.552	0.453	0.646

Jadual 1.29: Purata bulanan kepekatan Karbon Monoksida (CO) di udara, Malaysia, 2020-2024 (samb.)Table 1.29: *Monthly average concentration of Carbon Monoxide (CO) in the air, Malaysia, 2020-2024 (cont'd)*

ppm

Negeri/ Stesen State/ Station	Tahun Year	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Pahang													
Kuantan	2020	0.397	0.424	0.394	0.398	0.368	0.425	0.429	0.476	0.464	0.423	0.363	0.479
	2021	0.434	0.468	0.391	0.447	0.417	0.406	0.381	0.369	0.399	0.396	0.288	0.406
	2022	0.434	0.440	0.408	0.489	0.508	0.440	0.499	0.405	0.496	0.500	0.465	0.383
	2023	0.409	0.411	0.450	0.471	0.422	0.402	0.412	0.429	0.434	0.464	0.379	0.267
	2024	0.280	0.238	0.422	0.475	0.217	0.300	0.299	0.326	0.273	0.249	0.256	0.260
Temerloh	2020	0.537	0.604	0.451	0.366	0.381	0.398	0.383	0.435	0.345	0.388	0.365	0.518
	2021	0.533	0.491	0.409	0.417	0.393	0.368	0.371	0.376	0.353	0.408	0.383	0.429
	2022	0.456	0.485	0.468	0.477	0.535	0.450	0.525	0.491	0.415	0.579	0.555	0.482
	2023	0.556	0.498	0.515	0.551	0.478	0.444	0.443	0.440	0.562	0.539	0.376	0.533
	2024	0.471	0.546	0.536	0.497	0.464	0.520	0.481	0.452	0.554	0.510	0.387	0.511
Perak													
Pegoh, Ipoh	2020	0.487	0.549	0.372	0.372	0.316	0.467	0.492	0.575	0.454	0.433	0.393	0.538
	2021	0.623	0.521	0.649	0.590	0.527	0.433	0.443	0.427	0.512	0.488	0.539	0.540
	2022	0.557	0.457	0.500	0.609	0.496	0.534	0.528	0.534	0.422	0.451	0.418	0.410
	2023	0.535	0.603	0.518	0.481	0.422	0.432	0.467	0.416	0.446	0.610	0.570	0.596
	2024	0.616	0.466	0.500	0.491	0.529	0.444	0.465	0.422	0.541	0.428	0.344	0.462
Taiping	2020	0.360	0.344	0.262	0.210	0.151	0.287	0.249	0.265	0.284	0.300	0.226	0.308
	2021	0.362	0.367	0.297	0.219	0.210	0.212	0.307	0.236	0.346	0.346	0.371	0.358
	2022	0.306	0.208	0.260	0.206	0.304	0.244	0.319	0.331	0.330	0.288	0.271	0.277
	2023	0.301	0.261	0.281	0.199	0.223	0.302	0.291	0.264	0.300	0.259	0.259	0.310
	2024	0.339	0.324	0.308	0.284	0.221	0.285	0.364	0.260	0.278	0.236	0.280	0.277
Tanjung Malim	2020	0.485	0.518	0.513	0.413	0.472	0.505	0.459	0.577	0.510	0.456	0.478	0.555
	2021	0.520	0.466	0.382	0.426	0.533	0.482	0.509	0.558	0.485	0.527	0.479	0.600
	2022	0.575	0.491	0.553	0.593	0.557	0.553	0.498	0.541	0.509	0.411	0.392	0.365
	2023	0.549	0.485	0.502	0.546	0.518	0.531	0.446	0.448	0.480	0.594	0.484	0.499
	2024	0.522	0.553	0.575	0.277	0.348	0.442	0.483	0.469	0.415	0.448	0.386	0.501
Tasek, Ipoh	2020	0.715	0.556	0.556	0.469	0.495	0.568	0.548	0.501	0.470	0.576	0.516	0.652
	2021	0.555	0.554	0.657	0.584	0.498	0.512	0.494	0.460	0.544	0.501	0.531	0.610
	2022	0.611	0.593	0.530	0.638	0.482	0.387	0.630	0.576	0.519	0.444	0.539	0.561
	2023	0.618	0.526	0.625	0.560	0.514	0.601	0.592	0.604	0.602	0.650	0.517	0.590
	2024	0.509	0.668	0.680	0.519	0.575	0.541	0.612	0.521	0.651	0.619	0.429	0.621
Perlis													
Kangar	2020	0.450	0.437	0.437	0.433	0.460	0.493	0.523	0.500	0.476	0.362	0.428	0.452
	2021	0.456	0.410	0.371	0.376	0.363	0.336	0.385	0.358	0.378	0.451	0.400	0.519
	2022	0.445	0.409	0.369	0.424	0.407	0.442	0.437	0.379	0.379	0.395	0.435	0.450
	2023	0.606	0.462	0.437	0.616	0.407	0.533	0.424	0.346	0.612	0.492	0.567	0.504
	2024	0.520	0.561	0.543	0.603	0.439	0.398	0.410	0.538	0.538	0.563	0.592	0.601
Pulau Pinang													
Balik Pulau	2020	0.524	0.468	0.527	0.398	0.473	0.560	0.517	0.500	0.505	0.467	0.491	0.552
	2021	0.557	0.604	0.469	0.473	0.403	0.425	0.433	0.354	0.399	0.503	0.504	0.525
	2022	0.589	0.556	0.373	0.430	0.421	0.278	0.417	0.346	0.396	0.480	0.596	0.478
	2023	0.614	0.529	0.393	0.511	0.475	0.359	0.390	0.372	0.512	0.590	0.392	0.393
	2024	0.341	0.450	0.603	0.489	0.380	0.351	0.412	0.346	0.389	0.396	0.432	0.587

Jadual 1.29: Purata bulanan kepekatan Karbon Monoksida (CO) di udara, Malaysia, 2020-2024 (samb.)Table 1.29: *Monthly average concentration of Carbon Monoxide (CO) in the air, Malaysia, 2020-2024 (cont'd)*

ppm

Negeri/ Stesen State/ Station	Tahun Year	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Pulau Pinang													
Perai	2020	0.644	0.592	0.638	0.473	0.576	0.582	0.732	0.819	0.746	0.808	0.705	0.715
	2021	0.711	0.640	0.604	0.681	0.716	0.593	0.555	0.586	0.617	0.706	0.609	0.655
	2022	0.650	0.633	0.629	0.773	0.623	0.685	0.678	0.608	0.489	0.397	0.454	0.420
	2023	0.398	0.427	0.331	0.399	0.417	0.407	0.383	0.342	0.300	0.321	0.507	0.554
	2024	0.600	0.572	0.646	0.605	0.630	0.543	0.581	0.507	0.617	0.596	0.613	0.661
Seberang Jaya	2020	0.894	0.771	0.722	0.547	0.573	0.620	0.663	0.755	0.764	0.820	0.626	0.556
	2021	0.482	0.364	0.772	0.749	0.617	0.594	0.727	0.535	0.736	0.745	0.630	0.911
	2022	0.931	0.714	0.649	0.826	0.788	0.747	0.855	0.805	0.845	0.789	0.662	0.683
	2023	0.837	0.527	0.636	0.796	0.747	0.683	0.727	0.770	0.798	0.791	0.633	0.704
	2024	0.643	0.664	0.698	0.636	0.608	0.615	0.602	0.601	0.653	0.714	0.577	0.555
USM	2020	0.588	0.573	0.566	0.456	0.525	0.453	0.582	0.527	0.597	0.546	0.564	0.717
	2021	0.639	0.689	0.466	0.375	0.554	0.475	0.393	0.384	0.569	0.530	0.477	0.696
	2022	0.566	0.483	0.453	0.434	0.435	0.424	0.453	0.495	0.447	0.411	0.572	0.486
	2023	0.553	0.539	0.366	0.497	0.532	0.565	0.585	0.567	0.581	0.564	0.575	0.546
	2024	0.557	0.513	0.608	0.494	0.371	0.381	0.450	0.467	0.509	0.480	0.435	0.483
Sabah													
Keningau	2020	0.665	0.630	0.690	0.635	0.649	0.665	0.610	0.557	0.599	0.618	0.596	0.594
	2021	0.592	0.608	0.596	0.649	0.619	0.635	0.623	0.385	0.618	0.606	0.618	0.584
	2022	0.568	0.611	0.617	0.648	0.431	0.439	0.311	0.321	0.600	0.518	0.574	0.580
	2023	0.549	0.600	0.492	0.624	0.491	0.522	0.655	0.463	0.287	0.514	0.335	0.458
	2024	0.586	0.552	0.459	0.371	0.384	0.242	0.300	0.184	0.235	0.246	0.300	0.297
Kota Kinabalu	2020	0.359	0.497	0.531	0.558	0.564	0.332	0.411	0.494	0.326	0.264	0.228	0.241
	2021	0.337	0.445	0.347	0.478	0.231	0.214	0.331	0.390	0.390	0.355	0.303	0.315
	2022	0.198	0.371	0.373	0.484	0.412	0.278	0.250	0.217	0.146	0.210	0.166	0.182
	2023	0.221	0.212	0.209	0.251	0.267	0.278	0.368	0.497	0.630	0.574	0.438	0.370
	2024	0.675	0.722	0.793	0.582	0.526	0.326	0.444	0.550	0.528	0.528	0.560	0.478
Sandakan	2020	0.478	0.488	0.568	0.435	0.567	0.558	0.554	0.537	0.524	0.519	0.542	0.600
	2021	0.493	0.443	0.397	0.453	0.528	0.478	0.512	0.451	0.470	0.625	0.570	0.584
	2022	0.656	0.608	0.626	0.612	0.556	0.580	0.567	0.544	0.570	0.584	0.568	0.616
	2023	0.546	0.403	0.499	0.600	0.583	0.524	0.389	0.552	0.544	0.538	0.471	0.555
	2024	0.560	0.539	0.557	0.541	0.525	0.507	0.418	0.475	0.551	0.615	0.542	0.550
Tawau	2020	0.593	0.585	0.540	0.636	0.536	0.553	0.664	0.732	0.678	0.630	0.682	0.679
	2021	0.656	0.601	0.681	0.698	0.533	0.456	0.555	0.389	0.386	0.523	0.385	0.421
	2022	0.487	0.462	0.406	0.428	0.501	0.531	0.513	0.583	0.525	0.538	0.601	0.652
	2023	0.547	0.444	0.563	0.500	0.396	0.444	0.427	0.428	0.501	0.665	0.416	0.486
	2024	0.579	0.489	0.552	0.575	0.379	0.506	0.467	0.507	0.456	0.449	0.542	0.596
Sarawak													
Bintulu	2020	0.441	0.352	0.432	0.436	0.448	0.420	0.344	0.450	0.421	0.387	0.376	0.373
	2021	0.364	0.351	0.353	0.380	0.398	0.394	0.459	0.372	0.356	0.461	0.506	0.447
	2022	0.420	0.428	0.423	0.523	0.430	0.393	0.438	0.577	0.364	0.420	0.312	0.386
	2023	0.524	0.411	0.468	0.608	0.496	0.399	0.501	0.587	0.537	0.478	0.469	0.453
	2024	0.455	0.496	0.508	0.394	0.518	0.441	0.510	0.439	0.594	0.521	0.553	0.511
Kuching	2020	0.543	0.557	0.548	0.515	0.664	0.600	0.586	0.694	0.606	0.656	0.677	0.732
	2021	0.710	0.640	0.468	0.645	0.526	0.350	0.502	0.297	0.381	0.299	0.400	0.260
	2022	0.367	0.303	0.344	0.416	0.332	0.316	0.341	0.239	0.322	0.407	0.407	0.340
	2023	0.425	0.236	0.386	0.361	0.439	0.381	0.449	0.357	0.458	0.414	0.306	0.254
	2024	0.189	0.222	0.187	0.299	0.198	0.296	0.341	0.333	0.307	0.320	0.215	0.230

Jadual 1.29: Purata bulanan kepekatan Karbon Monoksida (CO) di udara, Malaysia, 2020-2024 (samb.)Table 1.29: *Monthly average concentration of Carbon Monoxide (CO) in the air, Malaysia, 2020-2024 (cont'd)*

ppm

Negeri/ Stesen State/ Station	Tahun Year	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Sarawak													
Miri	2020	0.549	0.596	0.522	0.533	0.573	0.641	0.466	0.506	0.598	0.690	0.494	0.537
	2021	0.543	0.474	0.474	0.484	0.485	0.429	0.573	0.477	0.431	0.403	0.494	0.482
	2022	0.521	0.462	0.441	0.485	0.435	0.392	0.505	0.495	0.585	0.493	0.604	0.530
	2023	0.614	0.592	0.616	0.639	0.560	0.580	0.527	0.551	0.559	0.606	0.421	0.525
	2024	0.284	0.425	0.564	0.559	0.496	0.345	0.449	0.535	0.441	0.518	0.450	0.526
Sibu	2020	0.448	0.286	0.240	0.253	0.316	0.351	0.572	0.556	0.598	0.458	0.582	0.502
	2021	0.233	0.291	0.333	0.384	0.450	0.430	0.471	0.358	0.443	0.441	0.531	0.490
	2022	0.525	0.432	0.520	0.392	0.443	0.364	0.404	0.372	0.422	0.461	0.434	0.387
	2023	0.490	0.465	0.430	0.373	0.356	0.356	0.468	0.512	0.426	0.391	0.432	0.406
	2024	0.340	0.384	0.585	0.511	0.415	0.384	0.432	0.444	0.652	0.516	0.401	0.480
Selangor													
Banting	2020	0.704	0.572	0.634	0.490	0.465	0.455	0.618	0.811	0.565	0.666	0.678	0.723
	2021	0.601	0.667	0.671	0.750	0.642	0.459	0.541	0.532	0.389	0.551	0.456	0.443
	2022	0.424	0.393	0.455	0.488	0.487	0.484	0.531	0.459	0.412	0.450	0.439	0.273
	2023	0.327	0.348	0.361	0.388	0.409	0.367	0.417	0.426	0.413	0.372	0.330	0.391
	2024	0.315	0.357	0.378	0.394	0.361	0.428	0.437	0.334	0.397	0.397	0.380	0.515
Klang	2020	0.942	0.922	0.806	0.586	0.678	0.779	0.794	0.843	0.782	0.711	0.707	0.892
	2021	0.788	0.801	0.809	0.805	0.813	0.641	0.792	0.751	0.714	0.934	0.751	0.717
	2022	0.887	0.807	0.671	0.822	0.720	0.826	0.862	0.619	0.630	0.541	0.561	0.505
	2023	0.626	0.541	0.477	0.552	0.954	1.004	0.833	0.960	0.961	1.178	1.113	1.210
	2024	1.062	1.113	1.011	0.770	0.512	0.821	0.768	0.761	0.830	0.841	1.002	0.968
Petaling Jaya	2020	1.262	1.206	0.889	0.636	0.778	0.927	1.013	0.992	0.964	1.090	1.147	1.400
	2021	0.872	0.623	0.591	0.632	0.540	0.905	0.893	0.933	1.039	1.126	0.753	0.905
	2022	1.006	0.890	0.821	0.740	0.643	0.635	0.556	0.471	0.488	0.410	0.409	0.652
	2023	0.688	0.971	0.977	1.009	0.990	0.961	0.984	1.080	0.950	1.168	1.033	0.837
	2024	0.662	0.727	0.969	1.069	1.131	0.996	0.941	0.927	0.921	0.944	0.936	0.780
Shah Alam	2020	0.835	0.735	0.777	0.603	0.608	0.749	0.852	0.760	0.770	0.669	0.655	0.804
	2021	0.750	0.650	0.657	0.645	0.778	0.533	0.594	0.672	0.662	0.684	0.658	0.788
	2022	0.699	0.518	0.475	0.433	0.397	0.402	0.464	0.436	0.446	0.547	0.791	0.887
	2023	0.730	0.849	0.667	0.835	0.681	0.727	0.688	0.713	0.746	0.883	0.539	0.644
	2024	0.517	0.654	0.762	0.684	0.725	0.587	0.487	0.613	0.474	0.549	0.514	0.586
Terengganu													
Besut	2020	0.459	0.501	0.599	0.501	0.389	0.395	0.350	0.436	0.381	0.327	0.356	0.549
	2021	0.537	0.519	0.517	0.504	0.508	0.450	0.487	0.398	0.365	0.440	0.432	0.489
	2022	0.435	0.458	0.497	0.462	0.320	0.439	0.483	0.404	0.384	0.249	0.221	0.359
	2023	0.543	0.367	0.381	0.347	0.328	0.229	0.250	0.381	0.442	0.338	0.332	0.325
	2024	0.408	0.496	0.537	0.576	0.591	0.598	0.358	0.299	0.424	0.548	0.608	0.621
Kuala Terengganu	2020	0.475	0.460	0.522	0.477	0.494	0.457	0.451	0.475	0.519	0.556	0.587	0.605
	2021	0.507	0.580	0.577	0.636	0.613	0.372	0.523	0.564	0.505	0.536	0.546	0.475
	2022	0.600	0.603	0.611	0.612	0.584	0.602	0.722	0.563	0.549	0.480	0.692	0.698
	2023	0.636	0.550	0.613	0.782	0.540	0.502	0.612	0.695	0.751	0.450	0.319	0.338
	2024	0.332	0.330	0.348	0.320	0.384	0.339	0.275	0.389	0.357	0.237	0.299	0.343

Jadual 1.29: Purata bulanan kepekatan Karbon Monoksida (CO) di udara, Malaysia, 2020-2024 (samb.)

Table 1.29: Monthly average concentration of Carbon Monoxide (CO) in the air, Malaysia, 2020-2024 (cont'd)

ppm

Negeri/ Stesen State/ Station	Tahun Year	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Wilayah Persekutuan													
Batu Muda, Kuala Lumpur	2020	0.732	0.923	0.992	0.864	0.751	0.951	0.966	1.034	1.080	0.828	1.023	1.112
	2021	0.779	0.631	0.724	0.818	0.737	0.525	0.579	0.726	0.903	0.915	0.847	0.847
	2022	0.939	0.700	0.758	0.879	0.967	0.822	0.434	0.527	0.732	0.497	0.674	0.511
	2023	0.560	0.586	0.475	0.501	0.485	0.401	0.553	0.489	0.498	0.544	0.455	0.493
	2024	0.473	0.457	0.726	0.579	0.423	0.367	0.372	0.459	0.425	0.459	0.398	0.520
Cheras, Kuala Lumpur	2020	0.712	0.680	0.679	0.559	0.602	0.648	0.788	0.726	0.749	0.726	0.820	0.998
	2021	0.932	0.856	0.979	0.857	0.846	0.698	0.739	0.860	0.687	0.824	0.951	0.964
	2022	1.004	0.982	0.969	1.060	0.817	0.584	0.657	0.916	0.973	0.980	1.041	0.720
	2023	0.871	1.050	0.915	0.942	0.771	0.671	0.502	0.562	0.748	1.027	0.941	0.903
	2024	0.818	0.758	0.829	0.882	0.713	0.674	0.635	0.861	0.929	0.486	0.533	0.522
Labuan	2020	0.375	0.618	0.618	0.591	0.602	0.612	0.486	0.695	0.637	0.621	0.658	0.596
	2021	0.588	0.616	0.542	0.549	0.508	0.673	0.677	0.612	0.690	0.668	0.617	0.691
	2022	0.677	0.639	0.638	0.558	0.597	0.595	0.601	0.366	0.278	0.230	0.291	0.269
	2023	0.292	0.317	0.352	0.367	0.513	0.323	0.406	0.371	0.375	0.337	0.230	0.214
	2024	0.293	0.290	0.242	0.265	0.295	0.189	0.220	0.256	0.295	0.250	0.440	0.591
Putrajaya	2020	0.582	0.528	0.623	0.470	0.474	0.317	0.510	0.550	0.520	0.569	0.608	0.688
	2021	0.574	0.610	0.819	0.871	0.882	0.728	0.794	0.747	0.754	0.854	0.789	0.846
	2022	0.874	0.791	0.912	0.940	0.683	0.647	0.384	0.246	0.616	0.364	0.311	0.263
	2023	0.323	0.396	0.354	0.670	0.667	0.671	0.610	0.656	0.670	0.770	0.703	0.493
	2024	0.539	0.639	0.799	0.740	0.710	0.512	0.608	0.500	0.723	0.752	0.670	0.570

Sumber: Jabatan Alam Sekitar
Source: Department of Environment

Nota/ Notes:

Garis Panduan Kualiti Udara Malaysia: CO tidak melebihi 9 ppm
Malaysian Ambient Air Quality Guidelines: CO not exceeding 9 ppm

Setiap stesen telah dikelaskan kepada beberapa kategori iaitu industri, urban, rural dan sub-urban. Pengelasan ini menyebabkan terdapat beberapa parameter yang tidak tersedia di stesen-stesen tertentu.

Each station has been classified into several categories, namely industrial, urban, rural, and suburban. This classification has resulted in some parameters being unavailable at certain stations.

Jadual 1.30: Purata bulanan kepekatan Sulfur Dioksida (SO₂) di udara, Malaysia, 2020-2024Table 1.30: Monthly average concentration of Sulphur Dioxide (SO₂) in the air, Malaysia, 2020-2024

ppm

Negeri/ Stesen State/ Station	Tahun Year	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Johor													
Batu Pahat	2020	0.0015	0.0017	0.0019	0.0019	0.0019	0.0015	0.0018	0.0019	0.0018	0.0015	0.0016	0.0019
	2021	0.0018	0.0020	0.0018	0.0019	0.0019	0.0014	0.0015	0.0017	0.0020	0.0010	0.0012	0.0013
	2022	0.0014	0.0016	0.0017	0.0016	0.0018	0.0017	0.0013	0.0016	0.0013	0.0017	0.0013	0.0016
	2023	0.0015	0.0019	0.0014	0.0015	0.0011	0.0013	0.0013	0.0015	0.0015	0.0011	0.0014	0.0013
	2024	0.0013	0.0013	0.0016	0.0012	0.0017	0.0014	0.0018	0.0019	0.0016	0.0015	0.0015	0.0014
Kota Tinggi	2020	0.0013	0.0012	0.0009	0.0011	0.0013	0.0013	0.0009	0.0010	0.0012	0.0015	0.0008	0.0010
	2021	0.0009	0.0012	0.0008	0.0010	0.0010	0.0015	0.0012	0.0012	0.0009	0.0012	0.0016	0.0015
	2022	0.0013	0.0012	0.0012	0.0010	0.0009	0.0015	0.0011	0.0014	0.0017	0.0014	0.0015	0.0010
	2023	0.0014	0.0015	0.0009	0.0012	0.0016	0.0016	0.0017	0.0012	0.0013	0.0015	0.0011	0.0013
	2024	0.0016	0.0012	0.0017	0.0013	0.0017	0.0017	0.0014	0.0018	0.0014	0.0019	0.0014	0.0016
Larkin	2020	0.0015	0.0016	0.0018	0.0019	0.0020	0.0014	0.0012	0.0017	0.0020	0.0021	0.0019	0.0020
	2021	0.0021	0.0021	0.0018	0.0019	0.0018	0.0019	0.0024	0.0019	0.0019	0.0018	0.0017	0.0017
	2022	0.0018	0.0021	0.0023	0.0023	0.0024	0.0021	0.0005	0.0012	0.0022	0.0022	0.0023	0.0024
	2023	0.0027	0.0024	0.0026	0.0025	0.0031	0.0031	0.0028	0.0026	0.0027	0.0027	0.0025	0.0020
	2024	0.0019	0.0023	0.0025	0.0023	0.0025	0.0027	0.0026	0.0028	0.0030	0.0029	0.0022	0.0021
Pasir Gudang	2020	0.0009	0.0010	0.0010	0.0011	0.0011	0.0010	0.0010	0.0011	0.0012	0.0013	0.0012	0.0012
	2021	0.0013	0.0014	0.0015	0.0015	0.0013	0.0013	0.0015	0.0011	0.0013	0.0021	0.0012	0.0011
	2022	0.0011	0.0011	0.0012	0.0012	0.0013	0.0015	0.0012	0.0010	0.0009	0.0009	0.0015	0.0018
	2023	0.0015	0.0009	0.0010	0.0010	0.0012	0.0011	0.0011	0.0013	0.0013	0.0020	0.0017	0.0016
	2024	0.0017	0.0017	0.0018	0.0017	0.0019	0.0017	0.0016	0.0017	0.0021	0.0024	0.0020	0.0013
Pengerang	2020	0.0010	0.0010	0.0014	0.0015	0.0015	0.0015	0.0015	0.0011	0.0010	0.0012	0.0014	0.0017
	2021	0.0010	0.0025	0.0015	0.0012	0.0010	0.0012	0.0014	0.0015	0.0016	0.0012	0.0015	0.0011
	2022	0.0013	0.0013	0.0011	0.0014	0.0013	0.0010	0.0010	0.0013	0.0013	0.0010	0.0013	0.0008
	2023	0.0010	0.0010	0.0010	0.0009	0.0012	0.0009	0.0010	0.0008	0.0008	0.0009	0.0011	0.0009
	2024	0.0009	0.0012	0.0012	0.0011	0.0012	0.0010	0.0011	0.0005	0.0010	0.0011	0.0007	0.0009
Segamat	2020	0.0009	0.0014	0.0012	0.0014	0.0012	0.0017	0.0020	0.0023	0.0025	0.0019	0.0012	0.0026
	2021	0.0023	0.0023	0.0023	0.0031	0.0031	0.0032	0.0011	0.0009	0.0013	0.0014	0.0023	0.0023
	2022	0.0019	0.0018	0.0020	0.0021	0.0018	0.0020	0.0015	0.0020	0.0022	0.0024	0.0025	0.0018
	2023	0.0021	0.0023	0.0009	0.0016	0.0020	0.0019	0.0022	0.0023	0.0023	0.0024	0.0013	0.0013
	2024	0.0017	0.0022	0.0026	0.0013	0.0014	0.0022	0.0027	0.0024	0.0022	0.0022	0.0023	0.0017
Tangkak	2020	0.0013	0.0012	0.0009	0.0009	0.0010	0.0010	0.0009	0.0012	0.0015	0.0012	0.0009	0.0011
	2021	0.0012	0.0015	0.0015	0.0013	0.0009	0.0014	0.0013	0.0011	0.0016	0.0018	0.0017	0.0009
	2022	0.0010	0.0014	0.0016	0.0011	0.0015	0.0016	0.0015	0.0020	0.0015	0.0012	0.0018	0.0018
	2023	0.0019	0.0017	0.0018	0.0014	0.0015	0.0014	0.0014	0.0018	0.0022	0.0010	0.0014	0.0019
	2024	0.0018	0.0018	0.0023	0.0025	0.0023	0.0020	0.0019	0.0021	0.0015	0.0022	0.0019	0.0020
Kedah													
Alor Setar	2020	0.0011	0.0008	0.0006	0.0005	0.0004	0.0007	0.0008	0.0010	0.0010	0.0006	0.0009	0.0011
	2021	0.0010	0.0011	0.0007	0.0005	0.0010	0.0011	0.0010	0.0008	0.0009	0.0009	0.0011	0.0011
	2022	0.0012	0.0011	0.0010	0.0008	0.0008	0.0010	0.0010	0.0006	0.0006	0.0010	0.0012	0.0011
	2023	0.0012	0.0014	0.0014	0.0009	0.0009	0.0010	0.0011	0.0011	0.0012	0.0011	0.0015	0.0014
	2024	0.0013	0.0012	0.0010	0.0008	0.0018	0.0015	0.0011	0.0012	0.0013	0.0013	0.0016	0.0015
Kulim	2020	0.0009	0.0009	0.0010	0.0010	0.0007	0.0008	0.0012	0.0011	0.0011	0.0011	0.0011	0.0006
	2021	0.0011	0.0013	0.0009	0.0010	0.0010	0.0008	0.0009	0.0008	0.0012	0.0014	0.0009	0.0007
	2022	0.0008	0.0004	0.0008	0.0007	0.0009	0.0011	0.0010	0.0012	0.0010	0.0011	0.0009	0.0018
	2023	0.0022	0.0016	0.0014	0.0012	0.0012	0.0014	0.0016	0.0012	0.0010	0.0008	0.0014	0.0011
	2024	0.0009	0.0010	0.0010	0.0011	0.0010	0.0010	0.0012	0.0013	0.0017	0.0014	0.0012	0.0010

Jadual 1.30: Purata bulanan kepekatan Sulfur Dioksida (SO₂) di udara, Malaysia, 2020-2024 (samb.)Table 1.30: *Monthly average concentration of Sulphur Dioxide (SO₂) in the air, Malaysia, 2020-2024 (cont'd)*

ppm

Negeri/ Stesen State/ Station	Tahun Year	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Kedah													
Langkawi	2020	0.0008	0.0008	0.0009	0.0011	0.0013	0.0012	0.0011	0.0011	0.0010	0.0010	0.0008	0.0008
	2021	0.0012	0.0013	0.0011	0.0012	0.0008	0.0007	0.0009	0.0010	0.0011	0.0009	0.0010	0.0012
	2022	0.0011	0.0010	0.0010	0.0010	0.0009	0.0007	0.0009	0.0008	0.0008	0.0011	0.0011	0.0011
	2023	0.0010	0.0012	0.0011	0.0009	0.0009	0.0009	0.0010	0.0010	0.0013	0.0010	0.0010	0.0010
	2024	0.0012	0.0013	0.0011	0.0010	0.0012	0.0015	0.0016	0.0017	0.0016	0.0017	0.0018	0.0017
Sungai Petani	2020	0.0012	0.0007	0.0008	0.0007	0.0009	0.0013	0.0015	0.0015	0.0013	0.0014	0.0010	0.0011
	2021	0.0009	0.0011	0.0012	0.0011	0.0009	0.0011	0.0011	0.0010	0.0012	0.0013	0.0013	0.0011
	2022	0.0014	0.0010	0.0009	0.0009	0.0009	0.0011	0.0008	0.0010	0.0011	0.0011	0.0011	0.0012
	2023	0.0013	0.0013	0.0011	0.0012	0.0011	0.0012	0.0012	0.0012	0.0014	0.0012	0.0011	0.0011
	2024	0.0013	0.0012	0.0014	0.0013	0.0011	0.0013	0.0017	0.0016	0.0017	0.0015	0.0016	0.0020
Kelantan													
Kota Bharu	2020	0.0006	0.0011	0.0010	0.0009	0.0008	0.0010	0.0008	0.0006	0.0009	0.0005	0.0008	0.0012
	2021	0.0012	0.0013	0.0008	0.0008	0.0008	0.0007	0.0004	0.0007	0.0009	0.0006	0.0008	0.0010
	2022	0.0008	0.0006	0.0009	0.0009	0.0007	0.0009	0.0014	0.0010	0.0014	0.0013	0.0011	0.0008
	2023	0.0010	0.0008	0.0014	0.0019	0.0013	0.0014	0.0012	0.0011	0.0013	0.0013	0.0014	0.0011
	2024	0.0013	0.0014	0.0010	0.0011	0.0017	0.0015	0.0015	0.0020	0.0016	0.0020	0.0019	0.0023
Tanah Merah	2020	0.0009	0.0012	0.0009	0.0007	0.0007	0.0009	0.0008	0.0007	0.0006	0.0006	0.0007	0.0006
	2021	0.0007	0.0009	0.0009	0.0010	0.0008	0.0008	0.0007	0.0009	0.0009	0.0010	0.0013	0.0009
	2022	0.0011	0.0010	0.0011	0.0012	0.0009	0.0008	0.0007	0.0009	0.0012	0.0011	0.0011	0.0010
	2023	0.0007	0.0021	0.0009	0.0009	0.0010	0.0009	0.0012	0.0010	0.0011	0.0009	0.0010	0.0011
	2024	0.0010	0.0008	0.0008	0.0009	0.0011	0.0012	0.0012	0.0014	0.0014	0.0015	0.0012	0.0010
Melaka													
Bandaraya Melaka	2020	0.0011	0.0014	0.0009	0.0010	0.0015	0.0012	0.0021	0.0014	0.0015	0.0024	0.0026	0.0026
	2021	0.0028	0.0014	0.0011	0.0007	0.0011	0.0015	0.0011	0.0019	0.0023	0.0024	0.0032	0.0034
	2022	0.0020	0.0026	0.0026	0.0027	0.0020	0.0024	0.0019	0.0014	0.0015	0.0023	0.0026	0.0021
	2023	0.0029	0.0034	0.0019	0.0022	0.0024	0.0018	0.0020	0.0019	0.0020	0.0020	0.0026	0.0024
	2024	0.0027	0.0021	0.0018	0.0015	0.0015	0.0019	0.0013	0.0012	0.0016	0.0021	0.0024	0.0019
Bukit Rambai	2020	0.0009	0.0016	0.0013	0.0012	0.0009	0.0007	0.0012	0.0011	0.0015	0.0018	0.0020	0.0019
	2021	0.0018	0.0020	0.0018	0.0012	0.0012	0.0018	0.0008	0.0010	0.0009	0.0018	0.0016	0.0020
	2022	0.0019	0.0014	0.0020	0.0016	0.0015	0.0011	0.0018	0.0010	0.0014	0.0015	0.0014	0.0014
	2023	0.0020	0.0019	0.0015	0.0013	0.0022	0.0027	0.0026	0.0025	0.0026	0.0030	0.0033	0.0032
	2024	0.0029	0.0041	0.0056	0.0045	0.0027	0.0051	0.0018	0.0034	0.0025	0.0097	0.0079	0.0045
Negeri Sembilan													
Nilai	2020	0.0014	0.0008	0.0009	0.0009	0.0008	0.0012	0.0009	0.0013	0.0011	0.0009	0.0009	0.0010
	2021	0.0010	0.0012	0.0010	0.0013	0.0012	0.0012	0.0014	0.0008	0.0009	0.0010	0.0013	0.0014
	2022	0.0010	0.0009	0.0011	0.0013	0.0014	0.0014	0.0015	0.0019	0.0021	0.0019	0.0017	0.0016
	2023	0.0019	0.0012	0.0010	0.0012	0.0018	0.0016	0.0016	0.0021	0.0031	0.0020	0.0024	0.0032
	2024	0.0031	0.0024	0.0038	0.0029	0.0046	0.0031	0.0043	0.0027	0.0039	0.0028	0.0027	0.0021
Port Dickson	2020	0.0013	0.0025	0.0018	0.0009	0.0020	0.0013	0.0012	0.0014	0.0012	0.0017	0.0012	0.0011
	2021	0.0014	0.0014	0.0014	0.0012	0.0009	0.0012	0.0011	0.0011	0.0014	0.0016	0.0015	0.0012
	2022	0.0010	0.0013	0.0011	0.0012	0.0014	0.0013	0.0015	0.0013	0.0012	0.0011	0.0007	0.0010
	2023	0.0014	0.0013	0.0012	0.0018	0.0021	0.0016	0.0015	0.0017	0.0033	0.0026	0.0027	0.0025
	2024	0.0019	0.0018	0.0019	0.0020	0.0018	0.0019	0.0017	0.0018	0.0013	0.0021	0.0018	0.0019

Jadual 1.30: Purata bulanan kepekatan Sulfur Dioksida (SO₂) di udara, Malaysia, 2020-2024 (samb.)

Table 1.30: Monthly average concentration of Sulphur Dioxide (SO₂) in the air, Malaysia, 2020-2024 (cont'd)

ppm

Negeri/ Stesen State/ Station	Tahun Year	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Negeri Sembilan													
Seremban	2020	0.0015	0.0014	0.0012	0.0010	0.0013	0.0019	0.0029	0.0027	0.0021	0.0023	0.0017	0.0023
	2021	0.0016	0.0015	0.0022	0.0019	0.0021	0.0017	0.0018	0.0030	0.0020	0.0025	0.0022	0.0016
	2022	0.0012	0.0018	0.0021	0.0025	0.0014	0.0018	0.0015	0.0018	0.0021	0.0025	0.0026	0.0025
	2023	0.0023	0.0020	0.0020	0.0019	0.0031	0.0035	0.0027	0.0022	0.0031	0.0036	0.0039	0.0050
	2024	0.0044	0.0013	0.0021	0.0025	0.0016	0.0015	0.0022	0.0025	0.0025	0.0014	0.0012	0.0015
Pahang													
Balok Baru	2020	0.0010	0.0009	0.0016	0.0006	0.0008	0.0009	0.0009	0.0011	0.0010	0.0012	0.0061	0.0082
	2021	0.0017	0.0019	0.0017	0.0011	0.0010	0.0009	0.0008	0.0007	0.0009	0.0016	0.0017	0.0028
	2022	0.0035	0.0032	0.0036	0.0026	0.0006	0.0010	0.0010	0.0007	0.0006	0.0018	0.0012	0.0058
	2023	0.0088	0.0049	0.0056	0.0011	0.0007	0.0009	0.0010	0.0009	0.0009	0.0007	0.0017	0.0021
	2024	0.0022	0.0037	0.0039	0.0014	0.0010	0.0012	0.0014	0.0008	0.0014	0.0016	0.0012	0.0046
Jerantut	2020	0.0010	0.0009	0.0016	0.0006	0.0008	0.0009	0.0009	0.0011	0.0010	0.0012	0.0061	0.0082
	2021	0.0017	0.0019	0.0017	0.0011	0.0010	0.0009	0.0008	0.0007	0.0009	0.0016	0.0017	0.0028
	2022	0.0035	0.0032	0.0036	0.0026	0.0006	0.0010	0.0010	0.0007	0.0006	0.0018	0.0012	0.0058
	2023	0.0010	0.0010	0.0008	0.0010	0.0011	0.0014	0.0010	0.0013	0.0010	0.0009	0.0009	0.0008
	2024	0.0013	0.0011	0.0010	0.0009	0.0008	0.0010	0.0017	0.0020	0.0019	0.0016	0.0022	0.0020
Kuantan	2020	0.0010	0.0010	0.0012	0.0006	0.0008	0.0011	0.0008	0.0011	0.0010	0.0011	0.0009	0.0012
	2021	0.0010	0.0012	0.0009	0.0010	0.0007	0.0007	0.0009	0.0008	0.0011	0.0011	0.0014	0.0017
	2022	0.0016	0.0010	0.0015	0.0015	0.0014	0.0014	0.0015	0.0015	0.0012	0.0012	0.0013	0.0011
	2023	0.0012	0.0014	0.0014	0.0012	0.0012	0.0015	0.0013	0.0012	0.0014	0.0016	0.0016	0.0016
	2024	0.0014	0.0016	0.0011	0.0020	0.0010	0.0018	0.0014	0.0020	0.0022	0.0017	0.0019	0.0020
Temerloh	2020	0.0006	0.0007	0.0008	0.0006	0.0005	0.0007	0.0008	0.0007	0.0009	0.0009	0.0008	0.0010
	2021	0.0010	0.0008	0.0008	0.0007	0.0007	0.0009	0.0009	0.0007	0.0010	0.0012	0.0013	0.0013
	2022	0.0015	0.0010	0.0013	0.0007	0.0011	0.0015	0.0008	0.0011	0.0012	0.0007	0.0009	0.0013
	2023	0.0010	0.0012	0.0009	0.0009	0.0009	0.0012	0.0015	0.0008	0.0011	0.0006	0.0008	0.0011
	2024	0.0012	0.0007	0.0010	0.0008	0.0008	0.0012	0.0014	0.0015	0.0017	0.0014	0.0017	0.0011
Perak													
Pegoh, Ipoh	2020	0.0009	0.0011	0.0005	0.0009	0.0004	0.0007	0.0007	0.0007	0.0008	0.0009	0.0008	0.0005
	2021	0.0006	0.0009	0.0009	0.0009	0.0008	0.0010	0.0009	0.0007	0.0007	0.0005	0.0005	0.0008
	2022	0.0011	0.0012	0.0005	0.0006	0.0009	0.0011	0.0007	0.0010	0.0016	0.0010	0.0010	0.0012
	2023	0.0012	0.0009	0.0009	0.0004	0.0009	0.0011	0.0013	0.0010	0.0010	0.0010	0.0008	0.0010
	2024	0.0011	0.0009	0.0009	0.0010	0.0010	0.0009	0.0006	0.0009	0.0009	0.0009	0.0008	0.0010
Taiping	2020	0.0009	0.0010	0.0011	0.0010	0.0009	0.0008	0.0009	0.0010	0.0010	0.0006	0.0008	0.0010
	2021	0.0011	0.0013	0.0010	0.0006	0.0008	0.0009	0.0011	0.0008	0.0011	0.0011	0.0009	0.0007
	2022	0.0012	0.0008	0.0011	0.0009	0.0008	0.0007	0.0009	0.0010	0.0006	0.0010	0.0006	0.0009
	2023	0.0010	0.0010	0.0008	0.0009	0.0010	0.0013	0.0009	0.0013	0.0014	0.0013	0.0010	0.0007
	2024	0.0010	0.0008	0.0010	0.0014	0.0010	0.0011	0.0008	0.0012	0.0010	0.0011	0.0012	0.0010
Tanjung Malim	2020	0.0008	0.0008	0.0006	0.0007	0.0008	0.0007	0.0009	0.0009	0.0010	0.0010	0.0007	0.0006
	2021	0.0010	0.0012	0.0007	0.0005	0.0006	0.0007	0.0010	0.0013	0.0015	0.0010	0.0009	0.0010
	2022	0.0011	0.0010	0.0011	0.0009	0.0011	0.0014	0.0015	0.0012	0.0013	0.0008	0.0009	0.0011
	2023	0.0009	0.0012	0.0010	0.0010	0.0013	0.0011	0.0006	0.0009	0.0012	0.0014	0.0010	0.0009
	2024	0.0013	0.0010	0.0012	0.0009	0.0009	0.0008	0.0008	0.0009	0.0013	0.0015	0.0008	0.0009
Tasek, Ipoh	2020	0.0008	0.0010	0.0008	0.0008	0.0011	0.0013	0.0009	0.0009	0.0012	0.0012	0.0012	0.0011
	2021	0.0012	0.0012	0.0012	0.0008	0.0009	0.0012	0.0012	0.0009	0.0011	0.0008	0.0011	0.0009
	2022	0.0008	0.0010	0.0013	0.0014	0.0011	0.0011	0.0014	0.0016	0.0015	0.0009	0.0008	0.0010
	2023	0.0008	0.0011	0.0012	0.0013	0.0013	0.0011	0.0011	0.0011	0.0011	0.0012	0.0011	0.0011
	2024	0.0012	0.0012	0.0014	0.0013	0.0015	0.0009	0.0011	0.0010	0.0013	0.0009	0.0009	0.0013

Jadual 1.30: Purata bulanan kepekatan Sulfur Dioksida (SO₂) di udara, Malaysia, 2020-2024 (samb.)Table 1.30: *Monthly average concentration of Sulphur Dioxide (SO₂) in the air, Malaysia, 2020-2024 (cont'd)*

ppm

Negeri/ Stesen State/ Station	Tahun Year	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Perlis													
Kangar	2020	0.0016	0.0008	0.0006	0.0007	0.0009	0.0011	0.0010	0.0012	0.0011	0.0011	0.0009	0.0011
	2021	0.0014	0.0012	0.0009	0.0009	0.0010	0.0011	0.0015	0.0013	0.0012	0.0012	0.0013	0.0012
	2022	0.0013	0.0009	0.0011	0.0013	0.0013	0.0012	0.0013	0.0009	0.0011	0.0012	0.0007	0.0009
	2023	0.0011	0.0011	0.0012	0.0012	0.0012	0.0011	0.0011	0.0011	0.0013	0.0012	0.0012	0.0013
	2024	0.0012	0.0014	0.0013	0.0013	0.0011	0.0014	0.0013	0.0015	0.0012	0.0011	0.0015	0.0017
Pulau Pinang													
Balik Pulau	2020	0.0013	0.0006	0.0006	0.0008	0.0010	0.0013	0.0010	0.0011	0.0008	0.0008	0.0009	0.0009
	2021	0.0011	0.0012	0.0009	0.0009	0.0010	0.0003	0.0005	0.0008	0.0010	0.0011	0.0009	0.0013
	2022	0.0011	0.0014	0.0013	0.0009	0.0011	0.0010	0.0010	0.0007	0.0006	0.0008	0.0015	0.0012
	2023	0.0010	0.0007	0.0008	0.0009	0.0008	0.0011	0.0007	0.0009	0.0011	0.0008	0.0011	0.0009
	2024	0.0009	0.0009	0.0010	0.0008	0.0011	0.0010	0.0010	0.0009	0.0008	0.0009	0.0008	0.0010
Perai	2020	0.0007	0.0007	0.0006	0.0005	0.0006	0.0008	0.0008	0.0007	0.0007	0.0005	0.0005	0.0006
	2021	0.0007	0.0005	0.0006	0.0006	0.0005	0.0005	0.0009	0.0009	0.0006	0.0008	0.0010	0.0006
	2022	0.0010	0.0008	0.0008	0.0010	0.0010	0.0011	0.0010	0.0012	0.0010	0.0006	0.0012	0.0011
	2023	0.0012	0.0010	0.0011	0.0011	0.0010	0.0009	0.0016	0.0011	0.0011	0.0011	0.0011	0.0008
	2024	0.0010	0.0010	0.0009	0.0010	0.0013	0.0011	0.0010	0.0011	0.0011	0.0009	0.0010	0.0008
Seberang Jaya	2020	0.0009	0.0009	0.0010	0.0010	0.0011	0.0009	0.0010	0.0009	0.0010	0.0010	0.0008	0.0012
	2021	0.0008	0.0007	0.0008	0.0009	0.0011	0.0007	0.0012	0.0012	0.0010	0.0013	0.0008	0.0009
	2022	0.0009	0.0009	0.0010	0.0011	0.0010	0.0009	0.0015	0.0012	0.0018	0.0012	0.0011	0.0011
	2023	0.0011	0.0006	0.0007	0.0008	0.0009	0.0010	0.0008	0.0010	0.0012	0.0014	0.0010	0.0012
	2024	0.0009	0.0008	0.0009	0.0011	0.0012	0.0011	0.0011	0.0010	0.0013	0.0011	0.0014	0.0011
USM	2020	0.0011	0.0008	0.0010	0.0009	0.0009	0.0012	0.0012	0.0019	0.0011	0.0010	0.0007	0.0008
	2021	0.0010	0.0009	0.0008	0.0013	0.0009	0.0011	0.0008	0.0013	0.0011	0.0009	0.0011	0.0010
	2022	0.0010	0.0005	0.0008	0.0011	0.0012	0.0007	0.0011	0.0009	0.0010	0.0009	0.0011	0.0008
	2023	0.0009	0.0016	0.0010	0.0010	0.0009	0.0012	0.0012	0.0013	0.0013	0.0011	0.0010	0.0006
	2024	0.0011	0.0010	0.0007	0.0007	0.0007	0.0011	0.0015	0.0012	0.0012	0.0007	0.0009	0.0011
Sabah													
Keningau	2020	0.0017	0.0013	0.0007	0.0008	0.0009	0.0011	0.0012	0.0010	0.0012	0.0014	0.0015	0.0011
	2021	0.0013	0.0015	0.0016	0.0019	0.0016	0.0013	0.0016	0.0017	0.0008	0.0010	0.0011	0.0014
	2022	0.0016	0.0012	0.0011	0.0012	0.0014	0.0018	0.0011	0.0013	0.0016	0.0015	0.0014	0.0017
	2023	0.0020	0.0017	0.0012	0.0012	0.0014	0.0016	0.0013	0.0012	0.0014	0.0017	0.0013	0.0011
	2024	0.0014	0.0017	0.0013	0.0016	0.0013	0.0006	0.0011	0.0014	0.0015	0.0019	0.0013	0.0015
Kimanis	2020	0.0007	0.0008	0.0008	0.0008	0.0005	0.0005	0.0007	0.0006	0.0006	0.0008	0.0006	0.0005
	2021	0.0009	0.0008	0.0006	0.0008	0.0009	0.0008	0.0008	0.0009	0.0005	0.0005	0.0007	0.0009
	2022	0.0008	0.0008	0.0008	0.0009	0.0009	0.0006	0.0006	0.0005	0.0006	0.0007	0.0008	0.0007
	2023	0.0007	0.0007	0.0005	0.0004	0.0005	0.0009	0.0008	0.0005	0.0006	0.0004	0.0003	0.0004
	2024	0.0005	0.0006	0.0010	0.0006	0.0006	0.0007	0.0008	0.0006	0.0007	0.0007	0.0007	0.0005
Kota Kinabalu	2020	0.0011	0.0015	0.0014	0.0007	0.0007	0.0011	0.0011	0.0008	0.0005	0.0005	0.0010	0.0014
	2021	0.0008	0.0007	0.0007	0.0009	0.0008	0.0011	0.0014	0.0015	0.0018	0.0010	0.0011	0.0011
	2022	0.0011	0.0012	0.0012	0.0011	0.0008	0.0005	0.0006	0.0005	0.0008	0.0010	0.0011	0.0010
	2023	0.0009	0.0009	0.0008	0.0008	0.0008	0.0010	0.0011	0.0013	0.0015	0.0010	0.0011	0.0006
	2024	0.0012	0.0013	0.0017	0.0012	0.0010	0.0011	0.0016	0.0011	0.0011	0.0012	0.0007	0.0007
Sandakan	2020	0.0009	0.0008	0.0008	0.0008	0.0007	0.0007	0.0008	0.0004	0.0006	0.0007	0.0007	0.0006
	2021	0.0008	0.0009	0.0005	0.0007	0.0008	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009
	2022	0.0009	0.0009	0.0010	0.0007	0.0006	0.0009	0.0009	0.0009	0.0008	0.0007	0.0008	0.0010
	2023	0.0006	0.0007	0.0009	0.0009	0.0007	0.0009	0.0009	0.0009	0.0011	0.0012	0.0008	0.0009
	2024	0.0008	0.0006	0.0008	0.0008	0.0009	0.0008	0.0008	0.0010	0.0010	0.0009	0.0011	0.0011

Jadual 1.30: Purata bulanan kepekatan Sulfur Dioksida (SO₂) di udara, Malaysia, 2020-2024 (samb.)Table 1.30: *Monthly average concentration of Sulphur Dioxide (SO₂) in the air, Malaysia, 2020-2024 (cont'd)*

ppm

Negeri/ Stesen State/ Station	Tahun Year	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Sabah													
Tawau	2020	0.0005	0.0006	0.0005	0.0004	0.0004	0.0005	0.0007	0.0008	0.0008	0.0008	0.0008	0.0006
	2021	0.0006	0.0008	0.0009	0.0009	0.0007	0.0009	0.0005	0.0007	0.0009	0.0009	0.0010	0.0010
	2022	0.0010	0.0010	0.0010	0.0009	0.0010	0.0013	0.0012	0.0011	0.0010	0.0012	0.0011	0.0011
	2023	0.0012	0.0012	0.0013	0.0012	0.0010	0.0011	0.0011	0.0017	0.0018	0.0017	0.0015	0.0015
	2024	0.0012	0.0016	0.0014	0.0012	0.0011	0.0009	0.0008	0.0009	0.0009	0.0010	0.0012	0.0012
Sarawak													
Bintulu	2020	0.0006	0.0005	0.0004	0.0003	0.0003	0.0002	0.0004	0.0004	0.0003	0.0004	0.0003	0.0003
	2021	0.0003	0.0003	0.0003	0.0004	0.0004	0.0003	0.0005	0.0004	0.0005	0.0005	0.0004	0.0003
	2022	0.0003	0.0005	0.0004	0.0004	0.0006	0.0007	0.0005	0.0005	0.0005	0.0003	0.0005	0.0004
	2023	0.0006	0.0006	0.0006	0.0006	0.0007	0.0005	0.0006	0.0004	0.0006	0.0007	0.0005	0.0004
	2024	0.0007	0.0005	0.0008	0.0007	0.0007	0.0006	0.0005	0.0004	0.0006	0.0006	0.0005	0.0004
Kuching	2020	0.0003	0.0003	0.0002	0.0003	0.0007	0.0004	0.0003	0.0003	0.0006	0.0013	0.0008	0.0010
	2021	0.0010	0.0013	0.0017	0.0014	0.0007	0.0010	0.0014	0.0010	0.0011	0.0012	0.0013	0.0008
	2022	0.0010	0.0008	0.0009	0.0009	0.0009	0.0014	0.0016	0.0008	0.0007	0.0009	0.0011	0.0012
	2023	0.0012	0.0013	0.0015	0.0015	0.0011	0.0012	0.0015	0.0018	0.0020	0.0015	0.0008	0.0008
	2024	0.0008	0.0013	0.0014	0.0017	0.0015	0.0015	0.0011	0.0014	0.0017	0.0015	0.0014	0.0010
Miri	2020	0.0005	0.0005	0.0005	0.0005	0.0004	0.0005	0.0005	0.0007	0.0007	0.0008	0.0008	0.0011
	2021	0.0012	0.0014	0.0015	0.0015	0.0008	0.0006	0.0007	0.0008	0.0009	0.0009	0.0011	0.0015
	2022	0.0007	0.0002	0.0003	0.0006	0.0007	0.0009	0.0012	0.0012	0.0009	0.0007	0.0010	0.0010
	2023	0.0011	0.0006	0.0009	0.0010	0.0008	0.0006	0.0009	0.0011	0.0013	0.0015	0.0010	0.0007
	2024	0.0010	0.0012	0.0011	0.0007	0.0007	0.0008	0.0010	0.0012	0.0008	0.0010	0.0010	0.0011
Samalaju	2020	0.0009	0.0011	0.0011	0.0007	0.0004	0.0004	0.0004	0.0005	0.0005	0.0007	0.0005	0.0004
	2021	0.0006	0.0010	0.0007	0.0005	0.0005	0.0004	0.0006	0.0006	0.0007	0.0004	0.0004	0.0005
	2022	0.0008	0.0010	0.0007	0.0006	0.0005	0.0006	0.0007	0.0007	0.0008	0.0007	0.0008	0.0011
	2023	0.0009	0.0023	0.0025	0.0011	0.0007	0.0006	0.0009	0.0005	0.0007	0.0007	0.0007	0.0006
	2024	0.0015	0.0015	0.0019	0.0008	0.0008	0.0007	0.0010	0.0010	0.0012	0.0007	0.0010	0.0011
Sibu	2020	0.0006	0.0007	0.0009	0.0009	0.0008	0.0008	0.0011	0.0012	0.0013	0.0013	0.0016	0.0014
	2021	0.0012	0.0010	0.0007	0.0006	0.0004	0.0006	0.0007	0.0007	0.0007	0.0005	0.0006	0.0006
	2022	0.0010	0.0007	0.0005	0.0005	0.0006	0.0005	0.0005	0.0008	0.0004	0.0004	0.0007	0.0006
	2023	0.0007	0.0005	0.0007	0.0007	0.0008	0.0006	0.0008	0.0006	0.0006	0.0006	0.0005	0.0006
	2024	0.0006	0.0006	0.0005	0.0004	0.0005	0.0006	0.0006	0.0006	0.0005	0.0006	0.0007	0.0008
Selangor													
Banting	2020	0.0013	0.0013	0.0012	0.0012	0.0011	0.0015	0.0014	0.0022	0.0013	0.0013	0.0016	0.0011
	2021	0.0013	0.0015	0.0015	0.0012	0.0011	0.0013	0.0013	0.0020	0.0014	0.0015	0.0017	0.0011
	2022	0.0013	0.0015	0.0011	0.0011	0.0014	0.0013	0.0014	0.0016	0.0011	0.0008	0.0010	0.0011
	2023	0.0012	0.0015	0.0015	0.0014	0.0016	0.0016	0.0015	0.0020	0.0022	0.0016	0.0020	0.0014
	2024	0.0015	0.0014	0.0020	0.0023	0.0024	0.0025	0.0044	0.0035	0.0018	0.0015	0.0016	0.0017
Klang	2020	0.0008	0.0012	0.0012	0.0008	0.0011	0.0012	0.0014	0.0018	0.0017	0.0019	0.0017	0.0016
	2021	0.0014	0.0020	0.0013	0.0017	0.0013	0.0014	0.0023	0.0008	0.0015	0.0011	0.0018	0.0018
	2022	0.0019	0.0017	0.0017	0.0017	0.0012	0.0012	0.0015	0.0012	0.0011	0.0018	0.0017	0.0016
	2023	0.0019	0.0015	0.0015	0.0019	0.0013	0.0014	0.0014	0.0012	0.0016	0.0015	0.0014	0.0014
	2024	0.0015	0.0016	0.0024	0.0017	0.0022	0.0026	0.0021	0.0026	0.0026	0.0021	0.0025	0.0029
Petaling Jaya	2020	0.0013	0.0009	0.0008	0.0007	0.0006	0.0009	0.0009	0.0009	0.0010	0.0011	0.0005	0.0008
	2021	0.0008	0.0009	0.0009	0.0006	0.0012	0.0011	0.0016	0.0011	0.0012	0.0016	0.0019	0.0016
	2022	0.0014	0.0018	0.0027	0.0013	0.0011	0.0007	0.0010	0.0012	0.0013	0.0014	0.0018	0.0017
	2023	0.0015	0.0010	0.0015	0.0019	0.0013	0.0016	0.0014	0.0018	0.0012	0.0011	0.0014	0.0012
	2024	0.0012	0.0011	0.0013	0.0017	0.0019	0.0020	0.0023	0.0019	0.0024	0.0021	0.0012	0.0016

Jadual 1.30: Purata bulanan kepekatan Sulfur Dioksida (SO₂) di udara, Malaysia, 2020-2024 (samb.)Table 1.30: *Monthly average concentration of Sulphur Dioxide (SO₂) in the air, Malaysia, 2020-2024 (cont'd)*

													ppm
Negeri/ Stesen State/ Station	Tahun Year	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Selangor													
Shah Alam	2020	0.0014	0.0011	0.0012	0.0009	0.0011	0.0013	0.0013	0.0013	0.0013	0.0013	0.0010	0.0012
	2021	0.0009	0.0012	0.0011	0.0013	0.0008	0.0006	0.0007	0.0009	0.0011	0.0011	0.0012	0.0013
	2022	0.0013	0.0010	0.0010	0.0014	0.0009	0.0011	0.0015	0.0013	0.0016	0.0018	0.0009	0.0009
	2023	0.0013	0.0009	0.0010	0.0016	0.0016	0.0018	0.0017	0.0013	0.0016	0.0013	0.0013	0.0018
	2024	0.0016	0.0016	0.0012	0.0010	0.0010	0.0014	0.0013	0.0018	0.0013	0.0017	0.0017	0.0013
Terengganu													
Besut	2020	0.0010	0.0013	0.0009	0.0007	0.0009	0.0008	0.0008	0.0009	0.0010	0.0007	0.0005	0.0007
	2021	0.0006	0.0006	0.0009	0.0005	0.0005	0.0009	0.0009	0.0008	0.0006	0.0007	0.0007	0.0010
	2022	0.0012	0.0008	0.0010	0.0010	0.0008	0.0014	0.0012	0.0012	0.0009	0.0008	0.0009	0.0007
	2023	0.0009	0.0010	0.0010	0.0010	0.0011	0.0008	0.0010	0.0013	0.0010	0.0011	0.0010	0.0012
	2024	0.0014	0.0011	0.0009	0.0011	0.0010	0.0012	0.0008	0.0008	0.0010	0.0012	0.0006	0.0007
Kemaman	2020	0.0009	0.0008	0.0006	0.0008	0.0007	0.0008	0.0009	0.0011	0.0008	0.0007	0.0010	0.0014
	2021	0.0004	0.0005	0.0008	0.0009	0.0007	0.0006	0.0009	0.0008	0.0009	0.0008	0.0006	0.0014
	2022	0.0008	0.0010	0.0013	0.0007	0.0008	0.0011	0.0016	0.0016	0.0011	0.0009	0.0011	0.0013
	2023	0.0016	0.0012	0.0013	0.0016	0.0013	0.0010	0.0011	0.0015	0.0014	0.0015	0.0014	0.0012
	2024	0.0009	0.0008	0.0010	0.0007	0.0010	0.0017	0.0019	0.0017	0.0014	0.0013	0.0015	0.0019
Kuala Terengganu	2020	0.0015	0.0014	0.0010	0.0010	0.0009	0.0008	0.0009	0.0013	0.0013	0.0013	0.0011	0.0011
	2021	0.0009	0.0008	0.0006	0.0008	0.0009	0.0011	0.0009	0.0012	0.0010	0.0009	0.0016	0.0011
	2022	0.0016	0.0011	0.0007	0.0010	0.0015	0.0010	0.0014	0.0013	0.0014	0.0012	0.0016	0.0017
	2023	0.0014	0.0011	0.0011	0.0013	0.0017	0.0017	0.0015	0.0023	0.0018	0.0018	0.0019	0.0024
	2024	0.0022	0.0030	0.0020	0.0019	0.0020	0.0018	0.0015	0.0022	0.0030	0.0034	0.0032	0.0023
Paka	2020	0.0011	0.0008	0.0007	0.0007	0.0007	0.0012	0.0010	0.0011	0.0012	0.0011	0.0008	0.0009
	2021	0.0005	0.0010	0.0008	0.0008	0.0009	0.0013	0.0009	0.0007	0.0010	0.0010	0.0011	0.0014
	2022	0.0006	0.0007	0.0009	0.0006	0.0007	0.0010	0.0007	0.0007	0.0006	0.0004	0.0008	0.0006
	2023	0.0007	0.0008	0.0007	0.0009	0.0014	0.0014	0.0016	0.0011	0.0013	0.0011	0.0011	0.0009
	2024	0.0009	0.0010	0.0007	0.0011	0.0009	0.0011	0.0012	0.0014	0.0007	0.0013	0.0014	0.0011
Wilayah Persekutuan													
Batu Muda, Kuala Lumpur	2020	0.0010	0.0009	0.0006	0.0005	0.0005	0.0008	0.0010	0.0010	0.0007	0.0009	0.0009	0.0008
	2021	0.0007	0.0012	0.0011	0.0005	0.0007	0.0010	0.0007	0.0009	0.0019	0.0013	0.0004	0.0005
	2022	0.0012	0.0009	0.0008	0.0009	0.0011	0.0011	0.0014	0.0021	0.0021	0.0011	0.0011	0.0015
	2023	0.0020	0.0013	0.0013	0.0013	0.0012	0.0019	0.0024	0.0018	0.0021	0.0023	0.0019	0.0018
	2024	0.0009	0.0016	0.0014	0.0015	0.0020	0.0022	0.0021	0.0018	0.0019	0.0020	0.0020	0.0022
Cheras, Kuala Lumpur	2020	0.0008	0.0008	0.0005	0.0005	0.0006	0.0009	0.0011	0.0011	0.0012	0.0008	0.0007	0.0006
	2021	0.0005	0.0008	0.0011	0.0008	0.0007	0.0010	0.0016	0.0011	0.0016	0.0014	0.0015	0.0004
	2022	0.0005	0.0006	0.0007	0.0009	0.0010	0.0013	0.0016	0.0012	0.0015	0.0017	0.0016	0.0017
	2023	0.0019	0.0019	0.0020	0.0011	0.0010	0.0015	0.0014	0.0016	0.0012	0.0012	0.0010	0.0010
	2024	0.0012	0.0010	0.0011	0.0008	0.0014	0.0018	0.0022	0.0017	0.0021	0.0015	0.0015	0.0020
Labuan	2020	0.0011	0.0008	0.0008	0.0010	0.0008	0.0003	0.0005	0.0008	0.0009	0.0003	0.0003	0.0005
	2021	0.0008	0.0010	0.0014	0.0013	0.0015	0.0014	0.0015	0.0017	0.0016	0.0016	0.0016	0.0011
	2022	0.0007	0.0005	0.0009	0.0013	0.0016	0.0015	0.0010	0.0009	0.0007	0.0009	0.0010	0.0006
	2023	0.0008	0.0008	0.0007	0.0011	0.0013	0.0014	0.0010	0.0011	0.0007	0.0010	0.0011	0.0009
	2024	0.0012	0.0015	0.0015	0.0013	0.0014	0.0018	0.0014	0.0017	0.0017	0.0015	0.0015	0.0013

Jadual 1.30: Purata bulanan kepekatan Sulfur Dioksida (SO₂) di udara, Malaysia, 2020-2024 (samb.)

Table 1.30: Monthly average concentration of Sulphur Dioxide (SO₂) in the air, Malaysia, 2020-2024 (cont'd)

													ppm
Negeri/ Stesen State/ Station	Tahun Year	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Wilayah Persekutuan													
Putrajaya	2020	0.0010	0.0007	0.0011	0.0010	0.0014	0.0012	0.0014	0.0015	0.0011	0.0015	0.0012	0.0010
	2021	0.0009	0.0011	0.0013	0.0011	0.0014	0.0016	0.0014	0.0010	0.0007	0.0006	0.0008	0.0009
	2022	0.0010	0.0011	0.0015	0.0017	0.0021	0.0021	0.0014	0.0020	0.0019	0.0023	0.0023	0.0025
	2023	0.0027	0.0015	0.0013	0.0013	0.0016	0.0025	0.0020	0.0020	0.0025	0.0027	0.0019	0.0017
	2024	0.0022	0.0022	0.0023	0.0019	0.0023	0.0018	0.0023	0.0026	0.0030	0.0026	0.0016	0.0019

Sumber: Jabatan Alam Sekitar
Source: Department of Environment

Nota/ Notes:

Garis Panduan Kualiti Udara Malaysia: SO₂ tidak melebihi 0.035 ppm
Malaysian Ambient Air Quality Guidelines: SO₂ not exceeding 0.035 ppm

Setiap stesen telah dikelaskan kepada beberapa kategori iaitu industri, urban, rural dan sub-urban. Pengelasan ini menyebabkan terdapat beberapa parameter yang tidak tersedia di stesen-stesen tertentu.
Each station has been classified into several categories, namely industrial, urban, rural, and suburban. This classification has resulted in some parameters being unavailable at certain stations.

Jadual 1.31: Purata bulanan kepekatan Nitrogen Dioksida (NO₂) di udara, Malaysia, 2020-2024Table 1.31: Monthly average concentration of Nitrogen Dioxide (NO₂) in the air, Malaysia, 2020-2024

ppm

Negeri/ Stesen State/ Station	Tahun Year	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Johor													
Batu Pahat	2020	0.0031	0.0029	0.0040	0.0027	0.0043	0.0050	0.0057	0.0059	0.0057	0.0064	0.0043	0.0044
	2021	0.0029	0.0039	0.0043	0.0054	0.0051	0.0051	0.0055	0.0037	0.0049	0.0051	0.0044	0.0036
	2022	0.0032	0.0033	0.0046	0.0051	0.0065	0.0046	0.0043	0.0046	0.0041	0.0044	0.0044	0.0035
	2023	0.0035	0.0024	0.0030	0.0053	0.0048	0.0045	0.0049	0.0052	0.0056	0.0058	0.0040	0.0033
	2024	0.0025	0.0030	0.0038	0.0047	0.0051	0.0053	0.0055	0.0041	0.0046	0.0048	0.0039	0.0036
Kota Tinggi	2020	0.0010	0.0010	0.0015	0.0018	0.0036	0.0039	0.0040	0.0040	0.0046	0.0060	0.0033	0.0017
	2021	0.0013	0.0012	0.0025	0.0050	0.0041	0.0040	0.0028	0.0037	0.0040	0.0051	0.0043	0.0018
	2022	0.0013	0.0017	0.0025	0.0049	0.0048	0.0058	0.0038	0.0053	0.0063	0.0055	0.0044	0.0023
	2023	0.0020	0.0013	0.0016	0.0044	0.0054	0.0049	0.0048	0.0040	0.0040	0.0043	0.0037	0.0021
	2024	0.0014	0.0010	0.0015	0.0035	0.0044	0.0056	0.0036	0.0050	0.0051	0.0075	0.0050	0.0024
Larkin	2020	0.0070	0.0077	0.0068	0.0039	0.0090	0.0102	0.0106	0.0111	0.0111	0.0111	0.0105	0.0083
	2021	0.0065	0.0059	0.0091	0.0139	0.0118	0.0100	0.0095	0.0092	0.0107	0.0116	0.0106	0.0070
	2022	0.0062	0.0068	0.0103	0.0138	0.0123	0.0127	0.0141	0.0143	0.0136	0.0110	0.0105	0.0092
	2023	0.0089	0.0064	0.0079	0.0144	0.0134	0.0138	0.0142	0.0156	0.0158	0.0165	0.0138	0.0095
	2024	0.0076	0.0053	0.0064	0.0135	0.0164	0.0148	0.0132	0.0132	0.0139	0.0160	0.0133	0.0084
Pasir Gudang	2020	0.0038	0.0039	0.0048	0.0047	0.0110	0.0133	0.0121	0.0120	0.0130	0.0155	0.0112	0.0077
	2021	0.0046	0.0040	0.0082	0.0154	0.0134	0.0134	0.0110	0.0113	0.0129	0.0123	0.0114	0.0070
	2022	0.0054	0.0063	0.0091	0.0151	0.0136	0.0160	0.0142	0.0161	0.0156	0.0142	0.0116	0.0093
	2023	0.0068	0.0058	0.0068	0.0145	0.0155	0.0133	0.0126	0.0125	0.0127	0.0137	0.0131	0.0080
	2024	0.0062	0.0037	0.0060	0.0124	0.0151	0.0162	0.0115	0.0116	0.0126	0.0160	0.0120	0.0069
Pengerang	2020	0.0020	0.0022	0.0028	0.0030	0.0053	0.0048	0.0041	0.0039	0.0047	0.0068	0.0036	0.0023
	2021	0.0012	0.0014	0.0030	0.0045	0.0028	0.0044	0.0039	0.0049	0.0046	0.0047	0.0044	0.0021
	2022	0.0017	0.0020	0.0026	0.0049	0.0049	0.0058	0.0040	0.0067	0.0066	0.0069	0.0053	0.0027
	2023	0.0022	0.0013	0.0017	0.0043	0.0054	0.0041	0.0042	0.0051	0.0047	0.0043	0.0038	0.0021
	2024	0.0013	0.0014	0.0018	0.0027	0.0041	0.0040	0.0040	0.0041	0.0048	0.0065	0.0046	0.0026
Segamat	2020	0.0035	0.0039	0.0027	0.0029	0.0038	0.0055	0.0055	0.0061	0.0056	0.0064	0.0046	0.0052
	2021	0.0040	0.0036	0.0042	0.0064	0.0058	0.0045	0.0048	0.0053	0.0050	0.0055	0.0052	0.0037
	2022	0.0043	0.0036	0.0044	0.0054	0.0062	0.0063	0.0061	0.0063	0.0062	0.0052	0.0050	0.0041
	2023	0.0044	0.0034	0.0042	0.0070	0.0068	0.0067	0.0073	0.0079	0.0072	0.0068	0.0058	0.0050
	2024	0.0061	0.0062	0.0062	0.0068	0.0077	0.0073	0.0065	0.0071	0.0076	0.0070	0.0061	0.0058
Tangkak	2020	0.0031	0.0029	0.0044	0.0028	0.0021	0.0043	0.0037	0.0037	0.0050	0.0065	0.0038	0.0046
	2021	0.0028	0.0038	0.0048	0.0052	0.0039	0.0037	0.0041	0.0039	0.0051	0.0062	0.0061	0.0043
	2022	0.0045	0.0038	0.0049	0.0053	0.0060	0.0069	0.0055	0.0052	0.0057	0.0057	0.0067	0.0053
	2023	0.0047	0.0036	0.0043	0.0069	0.0072	0.0063	0.0060	0.0066	0.0065	0.0071	0.0045	0.0041
	2024	0.0039	0.0047	0.0062	0.0057	0.0045	0.0049	0.0050	0.0060	0.0057	0.0062	0.0052	0.0053
Kedah													
Alor Setar	2020	0.0025	0.0031	0.0046	0.0029	0.0032	0.0049	0.0054	0.0056	0.0048	0.0049	0.0041	0.0042
	2021	0.0036	0.0040	0.0051	0.0060	0.0040	0.0030	0.0039	0.0039	0.0052	0.0051	0.0045	0.0037
	2022	0.0037	0.0043	0.0041	0.0054	0.0054	0.0038	0.0055	0.0053	0.0064	0.0054	0.0050	0.0038
	2023	0.0042	0.0038	0.0041	0.0057	0.0042	0.0045	0.0046	0.0050	0.0056	0.0053	0.0051	0.0039
	2024	0.0036	0.0038	0.0054	0.0047	0.0043	0.0043	0.0056	0.0041	0.0046	0.0043	0.0041	0.0036
Kulim	2020	0.0074	0.0082	0.0069	0.0045	0.0058	0.0066	0.0068	0.0070	0.0060	0.0058	0.0056	0.0055
	2021	0.0055	0.0066	0.0068	0.0065	0.0055	0.0050	0.0057	0.0049	0.0054	0.0061	0.0056	0.0061
	2022	0.0083	0.0071	0.0077	0.0085	0.0074	0.0083	0.0085	0.0095	0.0080	0.0074	0.0076	0.0083
	2023	0.0088	0.0098	0.0109	0.0109	0.0104	0.0105	0.0104	0.0088	0.0093	0.0086	0.0077	0.0075
	2024	0.0081	0.0080	0.0091	0.0068	0.0090	0.0077	0.0096	0.0083	0.0080	0.0083	0.0075	0.0087

Jadual 1.31: Purata bulanan kepekatan Nitrogen Dioksida (NO₂) di udara, Malaysia, 2020-2024 (samb.)Table 1.31: Monthly average concentration of Nitrogen Dioxide (NO₂) in the air, Malaysia, 2020-2024 (cont'd)

ppm

Negeri/ Stesen State/ Station	Tahun Year	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Kedah													
Langkawi	2020	0.0039	0.0044	0.0035	0.0018	0.0019	0.0031	0.0035	0.0035	0.0032	0.0030	0.0029	0.0036
	2021	0.0035	0.0037	0.0033	0.0029	0.0024	0.0016	0.0022	0.0018	0.0020	0.0029	0.0027	0.0036
	2022	0.0037	0.0027	0.0025	0.0029	0.0032	0.0034	0.0032	0.0033	0.0030	0.0033	0.0034	0.0041
	2023	0.0045	0.0042	0.0042	0.0036	0.0034	0.0031	0.0031	0.0030	0.0034	0.0027	0.0031	0.0035
	2024	0.0037	0.0032	0.0035	0.0030	0.0031	0.0029	0.0032	0.0030	0.0027	0.0027	0.0026	0.0038
Sungai Petani	2020	0.0065	0.0077	0.0066	0.0040	0.0049	0.0068	0.0073	0.0068	0.0063	0.0067	0.0073	0.0076
	2021	0.0075	0.0066	0.0076	0.0069	0.0062	0.0052	0.0056	0.0053	0.0065	0.0077	0.0073	0.0064
	2022	0.0080	0.0075	0.0067	0.0078	0.0078	0.0071	0.0088	0.0087	0.0079	0.0078	0.0087	0.0076
	2023	0.0072	0.0072	0.0068	0.0071	0.0073	0.0076	0.0073	0.0078	0.0081	0.0066	0.0074	0.0068
	2024	0.0065	0.0058	0.0075	0.0071	0.0063	0.0066	0.0088	0.0071	0.0068	0.0069	0.0070	0.0077
Kelantan													
Kota Bharu	2020	0.0026	0.0027	0.0029	0.0026	0.0027	0.0034	0.0042	0.0034	0.0035	0.0035	0.0037	0.0034
	2021	0.0020	0.0029	0.0029	0.0032	0.0026	0.0019	0.0031	0.0025	0.0024	0.0037	0.0039	0.0029
	2022	0.0032	0.0026	0.0029	0.0032	0.0040	0.0037	0.0048	0.0047	0.0041	0.0040	0.0034	0.0035
	2023	0.0031	0.0027	0.0027	0.0050	0.0039	0.0033	0.0041	0.0034	0.0038	0.0037	0.0044	0.0030
	2024	0.0026	0.0027	0.0026	0.0036	0.0042	0.0051	0.0054	0.0040	0.0037	0.0034	0.0034	0.0033
Tanah Merah	2020	0.0069	0.0067	0.0045	0.0029	0.0033	0.0036	0.0042	0.0044	0.0040	0.0040	0.0050	0.0062
	2021	0.0069	0.0071	0.0060	0.0049	0.0039	0.0025	0.0032	0.0035	0.0038	0.0048	0.0058	0.0083
	2022	0.0072	0.0050	0.0053	0.0053	0.0049	0.0046	0.0048	0.0046	0.0045	0.0052	0.0072	0.0085
	2023	0.0074	0.0071	0.0078	0.0078	0.0063	0.0050	0.0052	0.0041	0.0036	0.0047	0.0058	0.0068
	2024	0.0070	0.0069	0.0059	0.0069	0.0056	0.0061	0.0049	0.0047	0.0058	0.0043	0.0048	0.0066
Melaka													
Bandaraya	2020	0.0052	0.0040	0.0051	0.0029	0.0047	0.0055	0.0069	0.0072	0.0068	0.0074	0.0065	0.0070
Melaka	2021	0.0042	0.0038	0.0052	0.0075	0.0060	0.0048	0.0049	0.0057	0.0058	0.0067	0.0071	0.0050
	2022	0.0043	0.0054	0.0057	0.0075	0.0081	0.0064	0.0071	0.0067	0.0070	0.0070	0.0069	0.0054
	2023	0.0053	0.0036	0.0045	0.0074	0.0057	0.0060	0.0056	0.0062	0.0060	0.0078	0.0070	0.0050
	2024	0.0039	0.0028	0.0041	0.0059	0.0052	0.0081	0.0055	0.0073	0.0070	0.0067	0.0059	0.0067
Bukit Rambai	2020	0.0046	0.0037	0.0047	0.0034	0.0057	0.0072	0.0072	0.0080	0.0067	0.0077	0.0054	0.0060
	2021	0.0039	0.0047	0.0064	0.0075	0.0069	0.0053	0.0057	0.0054	0.0066	0.0081	0.0073	0.0058
	2022	0.0042	0.0043	0.0054	0.0065	0.0073	0.0066	0.0080	0.0072	0.0070	0.0067	0.0062	0.0055
	2023	0.0062	0.0044	0.0045	0.0069	0.0077	0.0074	0.0070	0.0073	0.0075	0.0081	0.0065	0.0067
	2024	0.0044	0.0036	0.0054	0.0074	0.0069	0.0078	0.0076	0.0072	0.0065	0.0069	0.0059	0.0083
Negeri Sembilan													
Nilai	2020	0.0089	0.0097	0.0098	0.0062	0.0102	0.0112	0.0117	0.0112	0.0117	0.0125	0.0114	0.0133
	2021	0.0105	0.0108	0.0102	0.0113	0.0118	0.0083	0.0072	0.0096	0.0115	0.0126	0.0118	0.0110
	2022	0.0105	0.0087	0.0104	0.0118	0.0119	0.0080	0.0071	0.0110	0.0127	0.0115	0.0124	0.0102
	2023	0.0102	0.0088	0.0092	0.0138	0.0150	0.0144	0.0148	0.0143	0.0140	0.0156	0.0142	0.0120
	2024	0.0087	0.0083	0.0116	0.0140	0.0142	0.0150	0.0126	0.0104	0.0113	0.0132	0.0114	0.0129
Port Dickson	2020	0.0059	0.0049	0.0054	0.0037	0.0039	0.0036	0.0047	0.0042	0.0042	0.0057	0.0053	0.0065
	2021	0.0050	0.0052	0.0053	0.0066	0.0057	0.0049	0.0038	0.0044	0.0051	0.0065	0.0075	0.0058
	2022	0.0052	0.0053	0.0056	0.0078	0.0072	0.0059	0.0057	0.0053	0.0057	0.0057	0.0056	0.0050
	2023	0.0064	0.0058	0.0051	0.0061	0.0060	0.0058	0.0057	0.0063	0.0074	0.0082	0.0074	0.0054
	2024	0.0041	0.0045	0.0055	0.0062	0.0060	0.0076	0.0061	0.0063	0.0051	0.0066	0.0065	0.0068
Seremban	2020	0.0060	0.0044	0.0048	0.0026	0.0044	0.0060	0.0064	0.0054	0.0060	0.0072	0.0059	0.0075
	2021	0.0054	0.0054	0.0064	0.0074	0.0062	0.0046	0.0055	0.0063	0.0072	0.0092	0.0086	0.0081
	2022	0.0060	0.0052	0.0068	0.0077	0.0081	0.0081	0.0066	0.0062	0.0072	0.0063	0.0069	0.0055
	2023	0.0065	0.0044	0.0054	0.0072	0.0070	0.0065	0.0073	0.0077	0.0073	0.0076	0.0066	0.0056
	2024	0.0053	0.0059	0.0054	0.0074	0.0056	0.0076	0.0069	0.0070	0.0076	0.0085	0.0076	0.0076

Jadual 1.31: Purata bulanan kepekatan Nitrogen Dioksida (NO₂) di udara, Malaysia, 2020-2024 (samb.)Table 1.31: Monthly average concentration of Nitrogen Dioxide (NO₂) in the air, Malaysia, 2020-2024 (cont'd)

ppm

Negeri/ Stesen State/ Station	Tahun Year	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Pahang													
Balok Baru	2020	0.0049	0.0052	0.0044	0.0030	0.0030	0.0041	0.0044	0.0042	0.0046	0.0061	0.0063	0.0064
	2021	0.0062	0.0051	0.0053	0.0053	0.0044	0.0031	0.0033	0.0033	0.0036	0.0051	0.0056	0.0058
	2022	0.0048	0.0048	0.0048	0.0056	0.0049	0.0050	0.0042	0.0042	0.0049	0.0057	0.0053	0.0060
	2023	0.0056	0.0041	0.0043	0.0054	0.0048	0.0044	0.0040	0.0036	0.0040	0.0054	0.0070	0.0065
	2024	0.0060	0.0048	0.0053	0.0045	0.0052	0.0054	0.0043	0.0043	0.0054	0.0056	0.0070	0.0082
Jerantut	2020	0.0023	0.0020	0.0021	0.0013	0.0021	0.0027	0.0025	0.0032	0.0033	0.0035	0.0022	0.0020
	2021	0.0021	0.0022	0.0025	0.0026	0.0022	0.0015	0.0021	0.0023	0.0026	0.0027	0.0018	0.0023
	2022	0.0023	0.0021	0.0023	0.0026	0.0030	0.0024	0.0035	0.0027	0.0031	0.0025	0.0021	0.0021
	2023	0.0024	0.0025	0.0029	0.0027	0.0032	0.0031	0.0033	0.0032	0.0033	0.0030	0.0022	0.0021
	2024	0.0019	0.0019	0.0022	0.0024	0.0025	0.0028	0.0034	0.0035	0.0030	0.0023	0.0018	0.0021
Kuantan	2020	0.0037	0.0038	0.0034	0.0020	0.0032	0.0051	0.0061	0.0052	0.0054	0.0063	0.0051	0.0054
	2021	0.0051	0.0039	0.0041	0.0055	0.0051	0.0034	0.0035	0.0041	0.0046	0.0047	0.0049	0.0042
	2022	0.0045	0.0041	0.0048	0.0058	0.0061	0.0057	0.0058	0.0057	0.0063	0.0057	0.0060	0.0051
	2023	0.0053	0.0041	0.0042	0.0052	0.0053	0.0050	0.0046	0.0047	0.0049	0.0058	0.0051	0.0038
	2024	0.0037	0.0076	0.0039	0.0042	0.0054	0.0059	0.0041	0.0043	0.0049	0.0052	0.0044	0.0050
Temerloh	2020	0.0046	0.0045	0.0033	0.0021	0.0027	0.0037	0.0037	0.0043	0.0045	0.0048	0.0043	0.0046
	2021	0.0042	0.0039	0.0042	0.0045	0.0037	0.0026	0.0028	0.0035	0.0037	0.0042	0.0039	0.0043
	2022	0.0046	0.0036	0.0040	0.0043	0.0046	0.0045	0.0045	0.0044	0.0049	0.0050	0.0047	0.0053
	2023	0.0052	0.0050	0.0057	0.0049	0.0051	0.0051	0.0045	0.0051	0.0046	0.0053	0.0047	0.0045
	2024	0.0042	0.0044	0.0045	0.0046	0.0037	0.0036	0.0036	0.0037	0.0035	0.0036	0.0028	0.0038
Perak													
Pegoh, Ipoh	2020	0.0079	0.0078	0.0052	0.0036	0.0059	0.0077	0.0092	0.0087	0.0088	0.0081	0.0068	0.0084
	2021	0.0076	0.0061	0.0085	0.0091	0.0076	0.0045	0.0061	0.0064	0.0070	0.0082	0.0088	0.0088
	2022	0.0085	0.0072	0.0087	0.0095	0.0078	0.0073	0.0073	0.0056	0.0070	0.0054	0.0063	0.0057
	2023	0.0056	0.0055	0.0058	0.0066	0.0065	0.0068	0.0062	0.0057	0.0062	0.0053	0.0051	0.0050
	2024	0.0053	0.0051	0.0055	0.0061	0.0065	0.0063	0.0058	0.0058	0.0050	0.0057	0.0064	0.0072
Taiping	2020	0.0086	0.0086	0.0075	0.0039	0.0040	0.0066	0.0075	0.0078	0.0069	0.0072	0.0064	0.0075
	2021	0.0085	0.0092	0.0090	0.0079	0.0065	0.0044	0.0063	0.0059	0.0071	0.0079	0.0078	0.0090
	2022	0.0100	0.0073	0.0075	0.0075	0.0077	0.0069	0.0082	0.0092	0.0073	0.0068	0.0071	0.0076
	2023	0.0080	0.0080	0.0076	0.0057	0.0059	0.0083	0.0089	0.0083	0.0084	0.0064	0.0078	0.0072
	2024	0.0061	0.0076	0.0082	0.0063	0.0062	0.0073	0.0100	0.0073	0.0074	0.0069	0.0055	0.0061
Tanjung Malim	2020	0.0049	0.0051	0.0045	0.0026	0.0035	0.0048	0.0051	0.0060	0.0054	0.0057	0.0060	0.0050
	2021	0.0049	0.0045	0.0053	0.0054	0.0041	0.0035	0.0034	0.0033	0.0043	0.0047	0.0045	0.0044
	2022	0.0060	0.0050	0.0055	0.0056	0.0055	0.0057	0.0061	0.0057	0.0055	0.0053	0.0058	0.0061
	2023	0.0058	0.0059	0.0070	0.0066	0.0057	0.0057	0.0054	0.0055	0.0059	0.0061	0.0058	0.0066
	2024	0.0054	0.0056	0.0050	0.0053	0.0057	0.0056	0.0068	0.0070	0.0060	0.0064	0.0055	0.0061
Tasek, Ipoh	2020	0.0097	0.0083	0.0074	0.0032	0.0056	0.0090	0.0098	0.0089	0.0084	0.0083	0.0067	0.0098
	2021	0.0075	0.0068	0.0086	0.0083	0.0067	0.0043	0.0069	0.0058	0.0070	0.0069	0.0072	0.0077
	2022	0.0097	0.0069	0.0082	0.0086	0.0066	0.0076	0.0072	0.0087	0.0073	0.0077	0.0087	0.0080
	2023	0.0088	0.0066	0.0083	0.0084	0.0070	0.0074	0.0077	0.0071	0.0083	0.0082	0.0078	0.0069
	2024	0.0076	0.0075	0.0080	0.0075	0.0092	0.0090	0.0097	0.0080	0.0073	0.0069	0.0070	0.0079
Perlis													
Kangar	2020	0.0023	0.0024	0.0022	0.0014	0.0020	0.0030	0.0028	0.0030	0.0029	0.0027	0.0034	0.0037
	2021	0.0021	0.0026	0.0032	0.0032	0.0023	0.0017	0.0020	0.0021	0.0029	0.0030	0.0028	0.0024
	2022	0.0022	0.0021	0.0030	0.0035	0.0032	0.0028	0.0037	0.0038	0.0035	0.0036	0.0028	0.0030
	2023	0.0029	0.0026	0.0028	0.0039	0.0025	0.0033	0.0025	0.0030	0.0034	0.0032	0.0037	0.0029
	2024	0.0026	0.0026	0.0036	0.0030	0.0029	0.0027	0.0037	0.0026	0.0029	0.0031	0.0031	0.0033

Jadual 1.31: Purata bulanan kepekatan Nitrogen Dioksida (NO₂) di udara, Malaysia, 2020-2024 (samb.)Table 1.31: Monthly average concentration of Nitrogen Dioxide (NO₂) in the air, Malaysia, 2020-2024 (cont'd)

ppm

Negeri/ Stesen State/ Station	Tahun Year	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Pulau Pinang													
Balik Pulau	2020	0.0039	0.0040	0.0038	0.0028	0.0028	0.0033	0.0033	0.0041	0.0033	0.0028	0.0032	0.0032
	2021	0.0035	0.0033	0.0042	0.0032	0.0032	0.0028	0.0028	0.0026	0.0031	0.0035	0.0034	0.0029
	2022	0.0043	0.0034	0.0036	0.0038	0.0039	0.0038	0.0036	0.0035	0.0034	0.0033	0.0035	0.0035
	2023	0.0035	0.0032	0.0040	0.0038	0.0042	0.0044	0.0043	0.0039	0.0051	0.0036	0.0041	0.0037
	2024	0.0040	0.0040	0.0043	0.0041	0.0035	0.0038	0.0040	0.0041	0.0043	0.0044	0.0038	0.0039
Perai	2020	0.0086	0.0073	0.0064	0.0047	0.0052	0.0073	0.0083	0.0079	0.0082	0.0086	0.0077	0.0067
	2021	0.0072	0.0066	0.0066	0.0076	0.0075	0.0063	0.0065	0.0055	0.0064	0.0059	0.0067	0.0060
	2022	0.0061	0.0061	0.0067	0.0074	0.0061	0.0081	0.0094	0.0085	0.0085	0.0076	0.0087	0.0081
	2023	0.0084	0.0083	0.0074	0.0079	0.0083	0.0088	0.0085	0.0075	0.0065	0.0064	0.0074	0.0066
	2024	0.0077	0.0058	0.0077	0.0068	0.0070	0.0076	0.0075	0.0075	0.0063	0.0068	0.0071	0.0085
Seberang Jaya	2020	0.0156	0.0145	0.0102	0.0065	0.0094	0.0106	0.0119	0.0117	0.0118	0.0114	0.0113	0.0137
	2021	0.0139	0.0121	0.0133	0.0125	0.0121	0.0100	0.0111	0.0093	0.0121	0.0121	0.0132	0.0148
	2022	0.0153	0.0134	0.0125	0.0154	0.0126	0.0131	0.0139	0.0148	0.0125	0.0123	0.0128	0.0144
	2023	0.0147	0.0131	0.0133	0.0123	0.0131	0.0125	0.0133	0.0118	0.0121	0.0133	0.0144	0.0152
	2024	0.0134	0.0127	0.0137	0.0145	0.0131	0.0113	0.0121	0.0121	0.0101	0.0137	0.0115	0.0143
USM	2020	0.0078	0.0073	0.0064	0.0043	0.0045	0.0055	0.0062	0.0047	0.0068	0.0072	0.0065	0.0067
	2021	0.0064	0.0059	0.0072	0.0063	0.0060	0.0042	0.0045	0.0047	0.0053	0.0059	0.0072	0.0064
	2022	0.0075	0.0067	0.0071	0.0079	0.0069	0.0079	0.0072	0.0070	0.0073	0.0072	0.0090	0.0074
	2023	0.0070	0.0063	0.0074	0.0067	0.0073	0.0076	0.0072	0.0059	0.0067	0.0067	0.0075	0.0078
	2024	0.0071	0.0065	0.0062	0.0062	0.0058	0.0060	0.0058	0.0076	0.0066	0.0084	0.0075	0.0079
Sabah													
Keningau	2020	0.0032	0.0030	0.0030	0.0018	0.0021	0.0022	0.0020	0.0028	0.0024	0.0029	0.0023	0.0024
	2021	0.0019	0.0026	0.0023	0.0030	0.0023	0.0023	0.0030	0.0023	0.0025	0.0033	0.0024	0.0027
	2022	0.0022	0.0017	0.0021	0.0028	0.0026	0.0025	0.0026	0.0022	0.0021	0.0023	0.0020	0.0029
	2023	0.0025	0.0022	0.0020	0.0023	0.0033	0.0027	0.0030	0.0032	0.0028	0.0026	0.0023	0.0021
	2024	0.0020	0.0019	0.0022	0.0027	0.0024	0.0031	0.0035	0.0029	0.0040	0.0031	0.0026	0.0031
Kimanis	2020	0.0024	0.0029	0.0018	0.0012	0.0010	0.0014	0.0011	0.0016	0.0013	0.0010	0.0012	0.0012
	2021	0.0013	0.0016	0.0014	0.0016	0.0013	0.0012	0.0016	0.0014	0.0014	0.0012	0.0011	0.0013
	2022	0.0019	0.0018	0.0018	0.0020	0.0020	0.0017	0.0016	0.0017	0.0016	0.0016	0.0024	0.0022
	2023	0.0025	0.0024	0.0022	0.0017	0.0018	0.0015	0.0015	0.0018	0.0015	0.0016	0.0015	0.0015
	2024	0.0019	0.0024	0.0033	0.0020	0.0014	0.0014	0.0017	0.0014	0.0017	0.0015	0.0014	0.0016
Kota Kinabalu	2020	0.0033	0.0042	0.0026	0.0012	0.0014	0.0019	0.0018	0.0028	0.0025	0.0020	0.0022	0.0024
	2021	0.0027	0.0026	0.0028	0.0030	0.0027	0.0022	0.0029	0.0024	0.0023	0.0028	0.0029	0.0034
	2022	0.0025	0.0028	0.0025	0.0027	0.0026	0.0027	0.0034	0.0031	0.0029	0.0033	0.0032	0.0035
	2023	0.0030	0.0039	0.0039	0.0034	0.0039	0.0034	0.0037	0.0035	0.0034	0.0035	0.0036	0.0039
	2024	0.0037	0.0040	0.0055	0.0029	0.0025	0.0030	0.0036	0.0025	0.0034	0.0031	0.0031	0.0038
Sandakan	2020	0.0042	0.0033	0.0027	0.0016	0.0028	0.0041	0.0041	0.0041	0.0045	0.0034	0.0036	0.0041
	2021	0.0036	0.0027	0.0041	0.0041	0.0032	0.0025	0.0035	0.0030	0.0033	0.0043	0.0047	0.0046
	2022	0.0049	0.0035	0.0040	0.0042	0.0042	0.0036	0.0039	0.0044	0.0045	0.0048	0.0051	0.0053
	2023	0.0043	0.0036	0.0033	0.0040	0.0045	0.0047	0.0041	0.0046	0.0049	0.0042	0.0049	0.0044
	2024	0.0039	0.0035	0.0039	0.0039	0.0039	0.0053	0.0050	0.0047	0.0046	0.0051	0.0050	0.0043
Tawau	2020	0.0055	0.0057	0.0037	0.0026	0.0036	0.0046	0.0046	0.0050	0.0041	0.0035	0.0043	0.0049
	2021	0.0047	0.0046	0.0055	0.0051	0.0047	0.0039	0.0042	0.0039	0.0042	0.0047	0.0048	0.0057
	2022	0.0059	0.0046	0.0045	0.0051	0.0054	0.0045	0.0050	0.0050	0.0054	0.0049	0.0060	0.0053
	2023	0.0056	0.0050	0.0053	0.0056	0.0054	0.0051	0.0054	0.0052	0.0058	0.0058	0.0058	0.0057
	2024	0.0059	0.0054	0.0058	0.0052	0.0043	0.0048	0.0052	0.0048	0.0057	0.0049	0.0050	0.0044

Jadual 1.31: Purata bulanan kepekatan Nitrogen Dioksida (NO₂) di udara, Malaysia, 2020-2024 (samb.)Table 1.31: Monthly average concentration of Nitrogen Dioxide (NO₂) in the air, Malaysia, 2020-2024 (cont'd)

ppm

Negeri/ Stesen State/ Station	Tahun Year	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Sarawak													
Bintulu	2020	0.0044	0.0039	0.0035	0.0031	0.0039	0.0037	0.0032	0.0042	0.0039	0.0045	0.0040	0.0050
	2021	0.0041	0.0038	0.0040	0.0053	0.0041	0.0043	0.0049	0.0042	0.0047	0.0045	0.0046	0.0048
	2022	0.0042	0.0037	0.0039	0.0048	0.0044	0.0048	0.0042	0.0038	0.0047	0.0036	0.0047	0.0046
	2023	0.0040	0.0043	0.0035	0.0045	0.0046	0.0048	0.0049	0.0052	0.0049	0.0044	0.0043	0.0041
	2024	0.0041	0.0037	0.0035	0.0041	0.0047	0.0049	0.0049	0.0041	0.0038	0.0037	0.0043	0.0044
Kuching	2020	0.0048	0.0041	0.0035	0.0023	0.0032	0.0041	0.0043	0.0044	0.0049	0.0047	0.0046	0.0042
	2021	0.0033	0.0038	0.0042	0.0051	0.0042	0.0034	0.0033	0.0032	0.0040	0.0043	0.0050	0.0052
	2022	0.0072	0.0056	0.0057	0.0073	0.0059	0.0054	0.0054	0.0059	0.0054	0.0058	0.0064	0.0064
	2023	0.0057	0.0050	0.0051	0.0054	0.0063	0.0062	0.0060	0.0067	0.0058	0.0057	0.0066	0.0054
	2024	0.0050	0.0043	0.0047	0.0050	0.0053	0.0063	0.0068	0.0063	0.0066	0.0060	0.0060	0.0056
Miri	2020	0.0030	0.0029	0.0032	0.0017	0.0023	0.0028	0.0025	0.0034	0.0031	0.0034	0.0035	0.0032
	2021	0.0028	0.0032	0.0032	0.0040	0.0032	0.0031	0.0030	0.0026	0.0027	0.0032	0.0036	0.0038
	2022	0.0035	0.0030	0.0030	0.0037	0.0035	0.0036	0.0033	0.0033	0.0028	0.0025	0.0034	0.0035
	2023	0.0037	0.0028	0.0030	0.0042	0.0033	0.0033	0.0035	0.0034	0.0031	0.0035	0.0031	0.0032
	2024	0.0028	0.0028	0.0024	0.0033	0.0037	0.0033	0.0037	0.0036	0.0035	0.0029	0.0030	0.0037
Samalaju	2020	0.0017	0.0016	0.0019	0.0016	0.0017	0.0017	0.0017	0.0021	0.0019	0.0020	0.0023	0.0025
	2021	0.0023	0.0022	0.0022	0.0030	0.0029	0.0025	0.0031	0.0030	0.0026	0.0024	0.0024	0.0026
	2022	0.0025	0.0024	0.0025	0.0023	0.0023	0.0024	0.0027	0.0023	0.0027	0.0023	0.0025	0.0025
	2023	0.0023	0.0026	0.0023	0.0027	0.0027	0.0030	0.0028	0.0027	0.0026	0.0023	0.0026	0.0024
	2024	0.0027	0.0021	0.0023	0.0024	0.0028	0.0027	0.0030	0.0023	0.0027	0.0029	0.0028	0.0025
Sibu	2020	0.0045	0.0042	0.0032	0.0023	0.0030	0.0037	0.0044	0.0041	0.0041	0.0040	0.0040	0.0049
	2021	0.0035	0.0031	0.0035	0.0043	0.0029	0.0031	0.0038	0.0032	0.0035	0.0036	0.0038	0.0053
	2022	0.0048	0.0032	0.0034	0.0037	0.0038	0.0045	0.0037	0.0045	0.0040	0.0040	0.0047	0.0052
	2023	0.0053	0.0044	0.0042	0.0056	0.0042	0.0037	0.0039	0.0039	0.0041	0.0039	0.0046	0.0041
	2024	0.0033	0.0035	0.0039	0.0029	0.0030	0.0035	0.0031	0.0030	0.0036	0.0036	0.0034	0.0035
Selangor													
Banting	2020	0.0077	0.0078	0.0080	0.0053	0.0083	0.0098	0.0100	0.0097	0.0086	0.0081	0.0089	0.0105
	2021	0.0082	0.0069	0.0095	0.0096	0.0088	0.0064	0.0066	0.0058	0.0077	0.0080	0.0088	0.0082
	2022	0.0098	0.0081	0.0089	0.0106	0.0095	0.0093	0.0099	0.0098	0.0101	0.0099	0.0102	0.0096
	2023	0.0098	0.0095	0.0096	0.0093	0.0093	0.0104	0.0106	0.0109	0.0125	0.0133	0.0118	0.0117
	2024	0.0089	0.0093	0.0093	0.0115	0.0102	0.0114	0.0128	0.0122	0.0062	0.0063	0.0071	0.0061
Klang	2020	0.0177	0.0183	0.0140	0.0083	0.0110	0.0149	0.0167	0.0153	0.0150	0.0142	0.0169	0.0178
	2021	0.0170	0.0156	0.0187	0.0176	0.0163	0.0116	0.0096	0.0103	0.0141	0.0138	0.0155	0.0169
	2022	0.0204	0.0143	0.0144	0.0150	0.0145	0.0151	0.0144	0.0156	0.0160	0.0149	0.0174	0.0150
	2023	0.0161	0.0180	0.0181	0.0149	0.0142	0.0148	0.0157	0.0166	0.0162	0.0182	0.0171	0.0163
	2024	0.0186	0.0189	0.0202	0.0187	0.0195	0.0176	0.0149	0.0177	0.0172	0.0160	0.0194	0.0204
Petaling Jaya	2020	0.0227	0.0232	0.0185	0.0075	0.0133	0.0209	0.0218	0.0180	0.0188	0.0203	0.0229	0.0242
	2021	0.0225	0.0200	0.0240	0.0255	0.0170	0.0135	0.0098	0.0109	0.0197	0.0194	0.0186	0.0165
	2022	0.0151	0.0131	0.0122	0.0131	0.0110	0.0120	0.0145	0.0161	0.0154	0.0139	0.0155	0.0170
	2023	0.0149	0.0180	0.0176	0.0153	0.0160	0.0178	0.0166	0.0165	0.0149	0.0190	0.0159	0.0158
	2024	0.0157	0.0125	0.0148	0.0178	0.0169	0.0146	0.0125	0.0126	0.0111	0.0115	0.0115	0.0108
Shah Alam	2020	0.0141	0.0135	0.0119	0.0067	0.0101	0.0152	0.0170	0.0162	0.0147	0.0129	0.0147	0.0150
	2021	0.0139	0.0130	0.0163	0.0150	0.0150	0.0111	0.0106	0.0116	0.0135	0.0125	0.0129	0.0144
	2022	0.0147	0.0106	0.0103	0.0147	0.0151	0.0146	0.0169	0.0160	0.0142	0.0133	0.0137	0.0145
	2023	0.0131	0.0169	0.0175	0.0132	0.0144	0.0158	0.0155	0.0163	0.0154	0.0155	0.0133	0.0118
	2024	0.0119	0.0121	0.0144	0.0139	0.0148	0.0139	0.0146	0.0141	0.0126	0.0121	0.0147	0.0147

Jadual 1.31: Purata bulanan kepekatan Nitrogen Dioksida (NO₂) di udara, Malaysia, 2020-2024 (samb.)Table 1.31: Monthly average concentration of Nitrogen Dioxide (NO₂) in the air, Malaysia, 2020-2024 (cont'd)

ppm

Negeri/ Stesen State/ Station	Tahun Year	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.
Terengganu													
Besut	2020	0.0017	0.0017	0.0017	0.0013	0.0020	0.0020	0.0018	0.0020	0.0018	0.0020	0.0020	0.0022
	2021	0.0013	0.0015	0.0016	0.0020	0.0015	0.0008	0.0013	0.0013	0.0013	0.0020	0.0022	0.0024
	2022	0.0021	0.0018	0.0018	0.0020	0.0023	0.0022	0.0022	0.0021	0.0018	0.0020	0.0019	0.0025
	2023	0.0025	0.0019	0.0017	0.0028	0.0037	0.0031	0.0022	0.0023	0.0024	0.0025	0.0033	0.0019
	2024	0.0015	0.0021	0.0018	0.0020	0.0035	0.0026	0.0023	0.0016	0.0019	0.0022	0.0021	0.0027
Kemaman	2020	0.0021	0.0021	0.0020	0.0018	0.0024	0.0033	0.0034	0.0028	0.0034	0.0039	0.0029	0.0031
	2021	0.0024	0.0023	0.0024	0.0025	0.0026	0.0021	0.0026	0.0027	0.0028	0.0030	0.0031	0.0029
	2022	0.0026	0.0024	0.0026	0.0029	0.0034	0.0035	0.0034	0.0029	0.0033	0.0032	0.0035	0.0037
	2023	0.0034	0.0027	0.0032	0.0039	0.0035	0.0030	0.0036	0.0033	0.0036	0.0034	0.0034	0.0032
	2024	0.0028	0.0026	0.0031	0.0035	0.0035	0.0031	0.0028	0.0027	0.0039	0.0034	0.0036	0.0038
Kuala Terengganu	2020	0.0038	0.0033	0.0033	0.0022	0.0038	0.0046	0.0052	0.0050	0.0052	0.0053	0.0047	0.0050
	2021	0.0034	0.0031	0.0038	0.0056	0.0040	0.0030	0.0038	0.0043	0.0043	0.0051	0.0044	0.0041
	2022	0.0043	0.0029	0.0040	0.0046	0.0056	0.0048	0.0050	0.0051	0.0048	0.0044	0.0047	0.0052
	2023	0.0043	0.0033	0.0038	0.0056	0.0063	0.0064	0.0050	0.0047	0.0051	0.0054	0.0057	0.0047
	2024	0.0041	0.0044	0.0036	0.0042	0.0052	0.0059	0.0066	0.0057	0.0055	0.0047	0.0048	0.0054
Paka	2020	0.0012	0.0009	0.0014	0.0010	0.0019	0.0026	0.0027	0.0029	0.0031	0.0020	0.0014	0.0017
	2021	0.0013	0.0013	0.0014	0.0019	0.0018	0.0021	0.0026	0.0025	0.0024	0.0027	0.0035	0.0038
	2022	0.0022	0.0022	0.0025	0.0035	0.0056	0.0043	0.0044	0.0036	0.0039	0.0034	0.0036	0.0033
	2023	0.0023	0.0031	0.0028	0.0019	0.0030	0.0027	0.0028	0.0025	0.0022	0.0024	0.0020	0.0013
	2024	0.0009	0.0013	0.0012	0.0016	0.0027	0.0026	0.0033	0.0026	0.0025	0.0025	0.0020	0.0016
Wilayah Persekutuan													
Batu Muda, Kuala Lumpur	2020	0.0119	0.0105	0.0114	0.0049	0.0099	0.0153	0.0154	0.0167	0.0167	0.0143	0.0137	0.0145
	2021	0.0106	0.0095	0.0129	0.0149	0.0129	0.0092	0.0090	0.0093	0.0131	0.0127	0.0119	0.0125
	2022	0.0135	0.0117	0.0141	0.0157	0.0113	0.0114	0.0080	0.0089	0.0079	0.0073	0.0078	0.0078
	2023	0.0068	0.0078	0.0104	0.0116	0.0120	0.0135	0.0124	0.0123	0.0119	0.0128	0.0107	0.0101
	2024	0.0090	0.0086	0.0135	0.0158	0.0171	0.0165	0.0156	0.0137	0.0120	0.0113	0.0102	0.0114
Cheras, Kuala Lumpur	2020	0.0141	0.0114	0.0098	0.0048	0.0087	0.0130	0.0145	0.0128	0.0146	0.0135	0.0133	0.0147
	2021	0.0104	0.0076	0.0129	0.0139	0.0115	0.0066	0.0080	0.0102	0.0119	0.0128	0.0130	0.0140
	2022	0.0151	0.0113	0.0121	0.0136	0.0114	0.0130	0.0135	0.0132	0.0151	0.0128	0.0145	0.0142
	2023	0.0129	0.0127	0.0127	0.0133	0.0117	0.0123	0.0118	0.0134	0.0128	0.0143	0.0127	0.0087
	2024	0.0119	0.0106	0.0113	0.0119	0.0122	0.0150	0.0127	0.0105	0.0097	0.0149	0.0157	0.0158
Labuan	2020	0.0016	0.0014	0.0018	0.0015	0.0012	0.0016	0.0016	0.0019	0.0019	0.0022	0.0020	0.0022
	2021	0.0016	0.0016	0.0018	0.0016	0.0017	0.0012	0.0014	0.0017	0.0019	0.0021	0.0023	0.0019
	2022	0.0017	0.0013	0.0018	0.0020	0.0023	0.0025	0.0020	0.0015	0.0021	0.0020	0.0024	0.0023
	2023	0.0027	0.0020	0.0017	0.0018	0.0020	0.0023	0.0024	0.0028	0.0029	0.0027	0.0025	0.0022
	2024	0.0018	0.0018	0.0019	0.0020	0.0021	0.0024	0.0025	0.0023	0.0025	0.0020	0.0023	0.0025
Putrajaya	2020	0.0061	0.0061	0.0054	0.0036	0.0056	0.0064	0.0095	0.0083	0.0080	0.0076	0.0072	0.0088
	2021	0.0055	0.0049	0.0070	0.0079	0.0071	0.0046	0.0042	0.0053	0.0061	0.0075	0.0078	0.0075
	2022	0.0073	0.0071	0.0081	0.0094	0.0073	0.0062	0.0077	0.0084	0.0107	0.0101	0.0099	0.0066
	2023	0.0036	0.0075	0.0078	0.0078	0.0087	0.0091	0.0100	0.0119	0.0102	0.0124	0.0096	0.0087
	2024	0.0074	0.0067	0.0074	0.0090	0.0081	0.0093	0.0081	0.0097	0.0095	0.0109	0.0108	0.0108

Sumber: Jabatan Alam Sekitar
Source: Department of Environment**Nota/ Notes:****Garis Panduan Kualiti Udara Malaysia: NO₂ tidak melebihi 0.16 ppm**
Malaysian Ambient Air Quality Guidelines: NO₂ not exceeding 0.16 ppm**Setiap stesen telah dikelaskan kepada beberapa kategori iaitu industri, urban, rural dan sub-urban. Pengelasan ini menyebabkan terdapat beberapa parameter yang tidak tersedia di stesen-stesen tertentu.**

Each station has been classified into several categories, namely industrial, urban, rural, and suburban. This classification has resulted in some parameters being unavailable at certain stations.

Jadual 1.32: Purata tahunan kepekatan berdasarkan jenis bahan pencemar udara mengikut guna tanah, Malaysia, 2020-2024

Table 1.32: Average annual concentration based on the type of air pollutants by land use, Malaysia, 2020-2024

Bahan pencemar udara <i>Air pollutant</i>	Garis panduan Malaysia Malaysia guidelines	Tahun Year	Kawasan industri <i>Industrial areas</i>	Bandar Urban	Subbandar Sub-urban	Luar bandar Rural	Background
Ozon Permukaan Bumi (O ₃) <i>Ground Level Ozone</i>	0.10 ppm	2020	n.a.	0.0325	0.0278	n.a.	0.0175
		2021	n.a.	0.0317	0.0271	n.a.	0.0178
		2022	n.a.	0.0292	0.0269	n.a.	0.0189
		2023	n.a.	0.0315	0.0284	n.a.	0.0222
		2024	n.a.	0.0303	0.0277	n.a.	0.0190
Karbon Monoksida (CO) <i>Carbon Monoxide</i>	9.00 ppm	2020	n.a.	0.5831	0.5304	n.a.	0.6265
		2021	n.a.	0.5800	0.5172	n.a.	0.5940
		2022	n.a.	0.6003	0.5052	n.a.	0.5190
		2023	n.a.	0.6379	0.5309	n.a.	0.4960
		2024	n.a.	0.5350	0.5300	n.a.	0.3470
Sulfur Dioksida (SO ₂) <i>Sulphur Dioxide</i>	0.04 ppm	2020	0.0011	0.0012	0.0010	n.a.	0.0012
		2021	0.0010	0.0013	0.0011	n.a.	0.0014
		2022	0.0011	0.0014	0.0012	n.a.	0.0014
		2023	0.0013	0.0017	0.0013	n.a.	0.0014
		2024	0.0010	0.0020	0.0020	n.a.	0.0010
Nitrogen Dioksida (NO ₂) Nitrogen Dioxide	0.16 ppm	2020	0.0033	0.0081	0.0056	n.a.	0.0025
		2021	0.0033	0.0082	0.0055	n.a.	0.0025
		2022	0.0024	0.0094	0.0059	n.a.	0.0023
		2023	0.0040	0.0093	0.0062	n.a.	0.0026
		2024	0.0040	0.0093	0.0060	n.a.	0.0030
Habuk Halus (PM ₁₀) <i>Particulate Matter</i>	45 µg/m ³	2020	18	22	21	17	17
		2021	18	23	21	18	19
		2022	19	23	20	17	17
		2023	22	27	24	21	17
		2024	22	25	23	19	19
Habuk Halus (PM _{2.5}) <i>Particulate Matter</i>	25 µg/m ³	2020	10	14	13	10	9
		2021	10	15	14	11	10
		2022	10	16	13	10	8
		2023	13	19	15	13	10
		2024	13	16	15	11	10

Sumber: Jabatan Alam Sekitar
Source: Department of Environment

Jadual 1.33: Status kualiti air sungai berdasarkan pencemar utama, Malaysia, 2020-2024

Table 1.33: Status of river water quality based on main pollutants, Malaysia, 2020-2024

Tahun Year	Jumlah lembangan sungai yang diawasi <i>Total river basins monitored</i>	Ammoniakal Nitrogen <i>Ammoniacal Nitrogen</i> (NH ₃ -N)			Keperluan Oksigen Biokimia <i>Biochemical Oxygen Demand</i> (BOD ₅)			Pepejal Terampai <i>Suspended Solids</i> (SS)		
		B	ST	T	B	ST	T	B	ST	T
		C	SP	P	C	SP	P	C	SP	P
2020	144	28	74	42	83	46	15	110	14	20
2021	144	58	37	49	124	11	9	127	7	10
2022	144	52	51	41	120	10	14	118	12	14
2023	144	45	58	41	121	12	11	117	10	17
2024	144	61	45	38	116	16	12	122	10	12
Nota: B-Bersih Notes: C-Clean		ST-Sederhana Tercemar SP-Slightly Polluted		T-Tercemar P-Polluted		Sumber: Jabatan Alam Sekitar Source: Department of Environment				

Jadual 1.34: Purata tahunan kepekatan logam berat di sungai, Malaysia, 2020-2024

Table 1.34: Annual average concentration of heavy metals in river, Malaysia, 2020-2024

Logam berat <i>Heavy metal</i>	Nilai boleh diterima ¹ <i>Acceptable value</i>						mg/l
		2020	2021	2022	2023	2024	
Arsenik <i>Arsenic</i>	0.0500	0.0041	0.0040	0.0040	0.0040	0.0044	
Kadmium <i>Cadmium</i>	0.0050	0.0010	0.0010	0.0010	0.0010	0.0010	
Plumbum <i>Lead</i>	0.1000	0.0024	0.0024	0.0028	0.0026	0.0001	
Raksa <i>Mercury</i>	0.0010	0.0005	0.0003	0.0001	0.0001	0.0001	
Zink <i>Zinc</i>	1.5000	0.0264	0.0412	0.0212	0.0189	0.0231	
Nota: ¹ Garis Panduan Kebangsaan untuk Kualiti Air Minuman oleh Kementerian Kesihatan Notes: National Guideline for Drinking Water Quality by the Ministry of Health		Sumber: Jabatan Alam Sekitar Source: Department of Environment					

Jadual 1.35: Bilangan stesen pemantauan kualiti air marin, Malaysia, 2020-2024

Table 1.35: Number of marine water quality monitoring stations, Malaysia, 2020-2024

Kawasan <i>Area</i>	2020	2021	2022	2023	2024
Jumlah <i>Total</i>	368	368	368	368	368
Kawasan pantai <i>Coastal areas</i>	188	188	188	188	188
Muara sungai <i>Estuaries</i>	85	85	85	85	85
Pulau <i>Island</i>	95	95	95	95	95
Sumber: Jabatan Alam Sekitar Source: Department of Environment					

Jadual 1.36: Status kualiti air marin di kawasan pantai berdasarkan Indeks Kualiti Air Marin, Malaysia, 2020-2024

Table 1.36: Status of marine water quality in coastal areas based on Marine Water Quality Index, Malaysia, 2020-2024

Negeri State	Kategori Category															
	2020				2021				2022				2023			
	E	G	M	P	E	G	M	P	E	G	M	P	E	G	M	P
Jumlah Total	55	41	88	4	85	40	63	-	88	39	61	-	106	13	69	-
Johor	12	7	7	3	17	5	7	-	14	8	7	-	19	3	7	-
Kedah	6	2	1	-	6	3	-	-	6	3	-	-	9	-	-	-
Kelantan	1	4	1	-	6	-	-	-	6	-	-	-	6	-	-	-
Melaka	3	2	4	-	-	5	4	-	1	6	2	-	4	3	2	-
Negeri Sembilan	5	7	2	-	9	3	2	-	11	3	-	-	12	2	-	-
Pahang	9	5	8	-	18	1	3	-	17	3	2	-	22	-	-	-
Perak	5	3	-	-	7	-	1	-	6	2	-	-	7	1	-	-
Pulau Pinang	-	6	11	-	3	4	10	-	4	5	8	-	9	1	7	-
Sabah	-	-	24	-	-	3	21	-	-	2	22	-	-	-	24	-
Sarawak	-	3	19	1	4	12	7	-	6	5	12	-	-	-	23	-
Selangor	1	-	5	-	-	3	3	-	1	2	3	-	2	3	1	-
Terengganu	13	2	1	-	15	1	-	-	16	-	-	-	16	-	-	-
W.P. Labuan	-	-	5	-	-	-	5	-	-	-	5	-	-	-	5	-

Sumber: Jabatan Alam Sekitar
Source: Department of Environment

Nota: Tiada stesen kualiti air marin di kawasan pantai bagi Perlis, W.P. Kuala Lumpur dan W.P. Putrajaya
Notes: No marine water quality stations in the coastal areas of Perlis, W.P. Kuala Lumpur and W.P. Putrajaya

Klasifikasi Indeks Kualiti Air Marin:
Marine Water Quality Index Classification:

Kategori Category	Nilai indeks Index value
E	Terbaik/ Excellent (90 -100)
G	Baik/ Good (80 - <90)
M	Sederhana/ Moderate (50 - <80)
P	Tercemar/ Poor (0 - <50)

Jadual 1.37: Status kualiti air marin di kawasan muara sungai berdasarkan Indeks Kualiti Air Marin, Malaysia, 2020-2024

Table 1.37: Status of marine water quality in estuary areas based on Marine Water Quality Index, Malaysia, 2020-2024

Negeri State	Kategori Category															
	2020				2021				2022				2023			
	E	G	M	P	E	G	M	P	E	G	M	P	E	G	M	P
Jumlah Total	3	6	63	13	7	10	63	5	7	10	65	3	6	10	68	1
Johor	-	1	3	2	1	-	5	-	1	-	4	1	-	1	5	-
Kedah	-	-	4	-	-	-	4	-	-	-	4	-	-	-	4	-
Kelantan	-	-	6	-	-	1	5	-	-	-	6	-	-	1	5	-
Melaka	-	1	7	-	-	-	8	-	-	-	8	-	-	-	8	-
Negeri Sembilan	-	-	2	-	-	-	2	-	-	-	2	-	-	-	2	-
Pahang	1	-	4	-	-	1	4	-	1	-	4	-	1	2	2	-
Perak	-	-	4	2	-	-	5	1	-	1	5	-	-	1	5	-
Perlis	-	-	2	-	-	-	2	-	-	-	2	-	-	-	2	-
Pulau Pinang	-	-	3	4	-	-	5	2	-	1	6	-	-	1	5	1
Sabah	-	-	2	-	-	-	2	-	-	-	2	-	-	-	2	-
Sarawak	-	1	13	-	2	4	8	-	1	5	8	-	-	-	14	-
Selangor	-	2	3	5	-	2	6	2	1	-	7	2	1	2	7	-
Terengganu	2	1	10	-	4	2	7	-	3	3	7	-	4	2	7	-

Bilangan stesen
Number of stations

Sumber: Jabatan Alam Sekitar
Source: Department of Environment

Nota: Tiada stesen kualiti air marin di kawasan muara sungai bagi W.P. Kuala Lumpur, W.P. Labuan dan W.P. Putrajaya
Notes: No marine water quality stations in the estuary areas of W.P. Kuala Lumpur, W.P. Labuan and W.P. Putrajaya

Klasifikasi Indeks Kualiti Air Marin:
Marine Water Quality Index Classification:

Kategori Category	Nilai indeks Index value
E	Terbaik/ Excellent (90 -100)
G	Baik/ Good (80 - <90)
M	Sederhana/ Moderate (50 - <80)
P	Tercemar/ Poor (0 - <50)

Jadual 1.38: Status kualiti air marin di kawasan pulau berdasarkan Indeks Kualiti Air Marin, Malaysia, 2020-2024

Table 1.38: Status of marine water quality in island areas based on Marine Water Quality Index, Malaysia, 2020-2024

Negeri State	Kategori Category															
	2020				2021				2022				2023			
	E	G	M	P	E	G	M	P	E	G	M	P	E	G	M	P
Jumlah Total	46	9	39	1	53	10	32	-	54	20	20	1	61	4	30	-
Johor	5	1	2	-	5	1	2	-	7	1	-	-	7	-	1	-
Kedah	12	2	-	-	13	1	-	-	13	1	-	-	13	1	-	-
Kelantan	-	1	1	-	2	-	-	-	2	-	-	-	2	-	-	-
Melaka	4	2	-	-	4	1	1	-	4	1	1	-	6	-	-	-
Negeri Sembilan	1	-	-	-	1	-	-	-	1	-	-	-	1	-	-	-
Pahang	7	1	1	-	9	-	-	-	9	-	-	-	9	-	-	-
Perak	4	-	1	-	4	1	-	-	4	1	-	-	5	-	-	-
Pulau Pinang	2	2	5	-	2	2	5	-	3	4	2	-	5	1	3	-
Sabah	-	-	17	-	-	2	15	-	-	7	10	-	-	-	17	-
Sarawak	-	-	3	-	2	1	-	-	-	3	-	-	-	2	1	-
Selangor	-	-	2	1	-	1	2	-	-	2	-	1	2	-	1	-
Terengganu	11	-	-	-	11	-	-	-	11	-	-	-	11	-	-	-
W.P. Labuan	-	-	7	-	-	-	7	-	-	-	7	-	-	-	7	-

Sumber: Jabatan Alam Sekitar
Source: Department of Environment

Nota: Tiada stesen kualiti air marin di kawasan pulau bagi Perlis, W.P. Kuala Lumpur dan W.P. Putrajaya
Notes: No marine water quality stations in the island areas of Perlis, W.P. Kuala Lumpur and W.P. Putrajaya

Klasifikasi Indeks Kualiti Air Marin:
Marine Water Quality Index Classification:

Kategori Category	Nilai indeks Index value
E	Terbaik/ Excellent (90 -100)
G	Baik/ Good (80 - <90)
M	Sederhana/ Moderate (50 - <80)
P	Tercemar/ Poor (0 - <50)

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KOMPONEN COMPONENT 2

**SUMBER ALAM SEKITAR DAN
KEGUNAANNYA**

***ENVIRONMENTAL RESOURCES
AND THEIR USE***



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Jadual 2.1: Rizab mineral, Malaysia, 2020-2024

Table 2.1: Mineral reserves, Malaysia, 2020-2024

					Tan metrik ('000) Metric tonnes
Galian Minerals	2020	2021	2022	2023	2024
Jumlah Total	50,750,133.7	50,725,506.6	50,778,536.6	57,394,932.8	45,308,703.3
Mineral berlogam/ Metallic minerals					
Timah Tin	2,100.0	2,100.0	2,100.0	2,494.6	2,423.5
Bijih besi Iron ore	502,600.0	502,600.0	502,600.0	510,255.1	505,449.8
Bauksit Bauxite	181,500.0	181,500.0	181,500.0	184,758.4	101,355.1
Tembaga Copper	5,900.0	5,900.0	5,900.0	13,810.0	13,810.0
Bijih nikel ¹ Nickel ore	75,000.0	271,000.0	271,000.0	75,129.1	75,312.6
Emas Gold	0.1	0.1	0.1	0.2	0.1
Mangan Manganese	3,200.0	3,200.0	3,200.0	9,296.4	9,296.4
Unsur nadir bumi ² Rare earth element (REE)	-	-	-	-	242.2
Mineral perindustrian/ Industrial minerals					
Batuan kuarza Quartz rock	860,700.0	860,700.0	860,700.0	1,346,387.1	1,174,320.0
Lempung bebola Ball clay	546,197.1	325,570.0	378,600.0	383,940.0	383,940.0
Lempung marin Marine clay	176,100.0	176,100.0	176,100.0	296,940.0	296,940.0
Lempung api Fire clay	150.0	150.0	150.0	100.0	100.0
Lempung biasa Common clay	498,386.5	498,386.5	498,386.5	573,326.5	607,986.5
Feldspar	8,012,700.0	8,012,700.0	8,012,700.0	13,349,181.9	9,479,486.0
Kaolin	79,600.0	79,600.0	79,600.0	90,804.8	75,390.0
Batu kapur Limestone	27,639,700.0	27,639,700.0	27,639,700.0	31,059,118.2	25,171,630.2
Mika Mica	4,100.0	4,100.0	4,100.0	9,348.0	4,100.0
Batu kapur bermagnesium Dolomite	200,000.0	200,000.0	200,000.0	1,173,848.6	1,173,848.6
Pasir silika Silica sand	368,200.0	368,200.0	368,200.0	368,951.0	441,091.0
Batu dimensi Dimension stone	5,772,000.0	5,772,000.0	5,772,000.0	2,737,219.0	2,462,039.0
Agregat batuan Rock aggregates	3,849,300.0	3,849,300.0	3,849,300.0	3,230,152.9	1,306,170.3
Mineral tenaga/ Energy mineral					
Arang batu Coal	1,972,750.0	1,972,700.0	1,972,700.0	1,979,871.0	2,023,772.0

Nota/ Notes:

¹ Sumber mengikut kelas sumber terukur dan kajian terkini oleh JMG
Resources by class of measured resources and the latest studies by JMG.

² Sumber REE dari jenis lempung jerapan ion dan laterit (JMG) kajian RMK-13
REE resources of ion-adsorption clay and laterite types based on JMG studies under RMK-13.

Sumber: Jabatan Mineral dan Geosains

Source: Department of Mineral and Geoscience

Jadual 2.2: Rizab minyak mentah dan kondensat, Malaysia, 2019-2023

Table 2.2: Reserves of crude oil and condensates, Malaysia, 2019-2023

					Bilion tong Billion barrels
Tahun Year	2019	2020	2021	2022	2023 ^p
Jumlah Total	4.675	4.527	4.430	4.486	4.316
Semenanjung Malaysia Peninsular Malaysia	1.476	1.306	1.292	1.375	4.161
Sabah	1.497	1.451	1.342	1.276	1.241
Sarawak	1.702	1.770	1.796	1.831	1.914

Sumber: Suruhanjaya Tenaga
Source: Energy Commission

Jadual 2.3: Rizab gas asli, Malaysia, 2019-2023

Table 2.3: Reserves of natural gas, Malaysia, 2019-2023

				Trillion Kaki Padu Piawai (TSCF) Trillion Standard Cubic Feet		
Jenis Type		2019	2020	2021	2022	2023 ^p
Jumlah keseluruhan Grand total		79.168	75.262	76.031	76.176	80.773
Sem. Malaysia Pen. Malaysia	Jumlah Total	21.648	20.313	20.246	19.058	17.106
	Bersekutu Associated	6.428	5.701	5.885	4.757	4.632
	Tidak bersekutu Non-associated	15.219	14.612	14.362	14.302	12.474
Sabah	Jumlah Total	11.665	10.55	9.675	10.125	10.963
	Bersekutu Associated	2.054	1.605	1.518	1.721	1.803
	Tidak bersekutu Non-associated	9.611	8.945	8.157	8.405	9.16
Sarawak	Jumlah Total	45.855	44.399	46.11	46.993	52.704
	Bersekutu Associated	1.419	1.151	1.971	2.956	3.921
	Tidak bersekutu Non-associated	44.436	43.248	44.139	44.037	48.782

Sumber: Suruhanjaya Tenaga
Source: Energy Commission

Jadual 2.4: Pengeluaran mineral mengikut jenis, Malaysia, 2020-2024

Table 2.4: Production of minerals by type, Malaysia, 2020-2024

					Tan metrik Metric Tonnes
Galian Minerals	2020	2021	2022	2023	2024 ^P
Mineral berlogam <i>Metallic minerals</i>					
Timah dalam konsentrat ¹ <i>Tin-in-concentrates</i>	3,091	3,013	3,521	3,780	3,796
Bijih besi <i>Iron ore</i>	5,371,411	4,874,485	4,911,625	4,817,048	5,297,934
Bauksit <i>Bauxite</i>	594,714	47,577	129,825	576,500	387,242
Ilmenit <i>Ilmenite</i>	2,548	4,598	24,076	14,096	11,919
Emas mentah ('000 gram) <i>Raw gold ('000 grams)</i>	1,716.0	1,781.2	1,828.3	1,583.3	2,187.8
Mineral bukan logam <i>Non-metallic minerals</i>					
Barit <i>Barytes</i>	-	-	-	-	-
Tanah liat & bahan tanih <i>Clay & earth materials</i>	25,365,453	26,549,734	29,963,919	32,845,663	32,868,891
Feldspar	144,487	168,570	216,394	242,757	279,351
Kaolin	336,565	228,605	236,840	290,365	266,526
Batu kapur (untuk simen) <i>Limestone (for cement)</i>	22,377,940	19,978,936	22,760,764	23,833,035	23,986,721
Mika <i>Mica</i>	4,083	3,406	3,779	3,980	4,004
Pasir dan kerikil <i>Sand and gravel</i>	35,681,476	35,556,498	33,566,866	46,109,608	38,290,772
Pasir silika <i>Silica sand</i>	5,172,409	6,913,354	5,364,128	6,161,537	6,434,329
Agregat <i>Aggregates</i>	108,084,837	109,519,817	138,637,413	118,717,573	145,460,762
Mineral tenaga <i>Energy mineral</i>					
Arang batu <i>Coal</i>	2,978,248	3,110,605	3,405,847	4,068,049	4,114,793

Sumber: Jabatan Mineral dan Geosains
Source: Department of Mineral and Geoscience

Nota: ¹Timah dalam konsentrat adalah merujuk kepada kandungan timah dalam konsentrat bijih timah
Notes: Tin-in-concentrates refers to tin content of in tin ore concentrates

^P Permulaan/ Preliminary

Jadual 2.5: Import mineral terpilih, Malaysia, 2020-2024

Table 2.5: Import of selected minerals, Malaysia, 2020-2024

RM '000

Galian Minerals	2020	2021	2022	2023	2024 ^p
Mineral berlogam <i>Metallic minerals</i>					
Timah <i>Tin</i>	1,384,472	1,235,352	1,868,689	1,660,824	1,340,318
Bijih besi <i>Iron ore</i>	4,889,458	6,624,016	7,481,572	6,713,072	7,310,333
Aluminium <i>Aluminium</i>	13,538	16,358	19,682	22,462	24,678
Emas <i>Gold</i>	-	-	-	-	-
Mangan <i>Manganese</i>	753,875	812,719	1,376,464	495,537	647,882
Mineral perindustrian <i>Industrial minerals</i>					
Kaolin	74,730	106,670	259,894	96,009	89,159
Batu kapur <i>Limestone</i>	67,885	50,765	35,085	23,254	31,363
Mika <i>Mica</i>	4,058	5,207	5,400	3,807	4,756
Pasir silika <i>Silica sand</i>	26,504	36,590	10,458	72,841	102,876
Agregat <i>Aggregates</i>	18,535	18,970 ^r	18,431	18,410	18,617
Mineral tenaga <i>Energy mineral</i>					
Arang batu <i>Coal</i>					
Arang batu antrasit <i>Anthracite coal</i>	101,039	100,824	239,404	212,096	122,512
Arang batu lain-lain <i>Other coal</i>	7,956,951	14,664,714	26,317,030	19,701,824	17,920,125
Kok & semi kok arang batu <i>Coke & semi coke of coal</i>	1,176,866	1,525,344	1,813,278	1,172,606	1,377,947

Nota: ^p Permulaan

Notes: Preliminary

Sumber: Jabatan Mineral dan Geosains

Source: Department of Mineral and Geoscience

Jadual 2.6: Eksport mineral terpilih, Malaysia, 2020-2024

Table 2.6: Export of selected minerals, Malaysia, 2020-2024

RM '000

Galian Minerals	2020	2021	2022	2023	2024 ^p
Mineral berlogam <i>Metallic minerals</i>					
Timah <i>Tin</i>	4,445	54,242	188,585	67,325	29,035
Bijih besi <i>Iron ore</i>	3,818,976	5,217,801	5,301,581	5,015,604	5,853,323
Aluminium <i>Aluminium</i>	46,617	42,436	56,042	129,010	185,935
Emas <i>Gold</i>	-	-	-	-	-
Mangan <i>Manganese</i>	223,227	151,780	155,961	87,573	75,516
Mineral perindustrian <i>Industrial minerals</i>					
Kaolin	35,954	47,233	40,645	79,181	30,784
Batu kapur <i>Limestone</i>	158,414	193,148	193,480	189,111	199,860
Mika <i>Mica</i>	8,072	7,769	3,932	5,869	4,960
Pasir silika <i>Silica sand</i>	265,167	138,661	61,159	320,156	236,210
Agregat <i>Aggregates</i>	184,237	218,793	120,907	199,014	221,572
Mineral tenaga <i>Energy mineral</i>					
Arang batu <i>Coal</i>					
Arang batu antrasit <i>Anthracite coal</i>	3,571	4,117	2,997	121	2,025
Arang batu lain-lain <i>Other coal</i>	4,010	37,359	48,860	74,943	95,994
Kok & semi kok arang batu <i>Coke & semi coke of coal</i>	533	637	1,516	7,885	6,457

Nota: ^p Permulaan
Notes: Preliminary

Sumber: Jabatan Mineral dan Geosains
Source: Department of Minerals and Geoscience

Jadual 2.7: Import dan eksport produk petroleum, Malaysia, 2019-2023

Table 2.7: Imports and exports of petroleum products, Malaysia, 2019-2023

ktoe

Tahun Year	2019	2020	2021	2022	2023 ^p
Import	17,662	12,586	18,329	16,030	24,008
Eksport <i>Export</i>	11,779	10,590	19,260	11,876	16,093

Nota: ^p Permulaan
Notes: Preliminary

Sumber: Suruhanjaya Tenaga
Source: Energy Commission

Jadual 2.8: Import dan eksport gas asli talian paip dan LNG, Malaysia, 2019-2023

Table 2.8: Imports and exports of piped natural gas and LNG, Malaysia, 2019-2023

					ktoe
Tahun Year	2019	2020	2021	2022	2023 ^p
Gas asli talian paip <i>Piped natural gas</i>					
Import	5,325	5,519	6,049	6,625	5,783
Eksport <i>Export</i>	1,114	1,179	1,569	1,629	1,822
LNG					
Import	2,663	2,939	1,996	3,801	2,896
Eksport <i>Export</i>	29,044	26,155	26,798	29,487	28,981
Nota: ^p Permulaan <i>Notes: Preliminary</i>			Sumber: Suruhanjaya Tenaga <i>Source: Energy Commission</i>		

Jadual 2.9: Tenaga primer yang dibekalkan mengikut jenis bahan api, Malaysia, 2019-2023

Table 2.9: Primary energy supply by fuel type, Malaysia, 2019-2023

					ktoe
Tahun Year	2019	2020	2021	2022	2023 ^p
Jumlah <i>Total</i>	98,681	94,192	94,399	104,607	109,222
Minyak mentah <i>Crude oil</i>	25,523	23,101	23,913	27,081	27,013
Produk petroleum dan lain-lain <i>Petroleum products and others</i>	7,290	2,672	1,338	3,443	7,574
Gas asli <i>Natural gas</i>	41,461	39,939	42,296	45,834	44,938
Arang batu dan kok <i>Coal and coke</i>	21,057	24,788	22,917	23,655	24,841
Kuasa hidro dan boleh baharu <i>Hydropower and renewables</i>	3,349	3,691	3,936	4,594	4,857
Nota: ^p Permulaan <i>Notes: Preliminary</i>			Sumber: Suruhanjaya Tenaga <i>Source: Energy Commission</i>		

Jadual 2.10: Pengeluaran produk petroleum dari loji penapisan, Malaysia, 2019-2023

Table 2.10: Production of petroleum products from refineries, Malaysia, 2019-2023

ktoe					
Tahun Year	2019	2020	2021	2022	2022 ^P
Jumlah Total	23,082	20,745	21,483	24,754	24,898
Petrol	5,317	5,089	6,760	6,958	4,070
Diesel	8,484	9,199	6,157	10,525	13,021
Minyak bahan api Fuel oil	1,388	1,204	1,497	2,185	1,802
LPG	560	672	1755	1,049	2,130
Minyak tanah Kerosene	8	12	10	2	16
ATF dan AVGAS ATF and AVGAS	3,470	2,459	2,386	1,461	1,782
Bukan tenaga Non-energy	3,708	1,954	2,762	2,409	1,901
Gas penapisan Refinery gas	147	156	155	164	176

Nota: ^P Permulaan
Notes: Preliminary

Sumber: Suruhanjaya Tenaga
Source: Energy Commission

Jadual 2.11: Penggunaan akhir tenaga mengikut jenis bahan api, Malaysia, 2019-2023

Table 2.11: Final energy consumption by fuel type, Malaysia, 2019-2023

ktoe					
Tahun Year	2019	2020	2021	2022	2023 ^P
Jumlah Total	66,483	57,169	56,423	58,826	66,835
Produk petroleum dan lain-lain Petroleum products and others	32,483	26,100	23,905	29,138	32,614
Elektrik Electricity	13,647	13,100	13,311	14,465	15,513
Gas asli Natural gas	18,647	16,631	17,815	13,670	16,830
Arang batu dan kok Coal and coke	1,706	1,338	1,392	1,553	1,878

Nota: ^P Permulaan
Notes: Preliminary

Sumber: Suruhanjaya Tenaga
Source: Energy Commission

Jadual 2.12: Penggunaan akhir tenaga produk petroleum, Malaysia, 2019-2023

Table 2.12: Final energy consumption for petroleum products, Malaysia, 2019-2023

					ktoe
Tahun Year	2019	2020	2021	2022	2023 ^p
Jumlah <i>Total</i>	31,835	25,309	25,905	29,138	32,614
Diesel	10,583	8,516	8,800	14,030	14,738
Petrol	13,811	11,188	10,529	9,478	11,425
Minyak bahan api <i>Fuel oil</i>	446	338	342	510	603
LPG	3,017	3,423	2,637	2,637	2,510
Minyak tanah <i>Kerosene</i>	12	32	59	38	33
ATF dan AVGAS <i>ATF and AVGAS</i>	3,261	1,199	985	1,819	2,668
Bukan tenaga <i>Non-energy</i>	705	613	552	625	637

Nota: ^p Permulaan
Notes: Preliminary

Sumber: Suruhanjaya Tenaga
Source: Energy Commission

Jadual 2.13: Penggunaan akhir tenaga mengikut sektor, Malaysia, 2019-2023

Table 2.13: Final energy consumption by sector, Malaysia, 2019-2023

					ktoe
Tahun Year	2019	2020	2021	2022	2023 ^p
Jumlah <i>Total</i>	66,483	57,169	57,390	60,019	68,172
Industri <i>Industry</i>	18,921	17,714	19,297	19,033	21,649
Pengangkutan <i>Transport</i>	25,004	18,660	18,095	24,091	27,698
Kediaman dan komersial <i>Residential and commercial</i>	8,000	8,123	8,084	8,498	9,475
Penggunaan bukan tenaga <i>Non-energy use</i>	13,631	11,805	10,869	7,183	8,359
Pertanian <i>Agriculture</i>	927	867	1045	1,215	992

Nota: ^p Permulaan
Notes: Preliminary

Sumber: Suruhanjaya Tenaga
Source: Energy Commission

Jadual 2.14: Peratusan tenaga boleh baharu, Malaysia, 2019-2023

Table 2.14: Renewable energy percentage, Malaysia, 2019-2023

Tahun Year	Jumlah tenaga primer yang dibekalkan Primary energy supplied	Campuran penjanaan Generation mix	Biotenaga Bioenergy	Peratus Per cent
2019	3.4	16.1	3.8	
2020	3.9	17.6	4.0	
2021	4.2	19.3	3.6	
2022	4.4	19.1	4	
2023 ^p	4.2	18.8	4.3	
Nota: ^p Permulaan				
Notes: Preliminary				
Sumber: Suruhanjaya Tenaga				
Source: Energy Commission				

Jadual 2.15: Intensiti tenaga dan penggunaan tenaga, Malaysia, 2019-2023

Table 2.15: Energy intensity and energy consumption, Malaysia, 2019-2023

Tahun Year	Intensiti tenaga Energy intensity		Penggunaan tenaga per kapita Energy consumption per capita			Intensiti tenaga mengikut sektor Energy intensity by sector	
	toe/ KDNK pada harga malar 2015 (RM juta) toe/ GDP at constant price 2015 (RM million)		(toe)			(toe)	
	Tenaga primer Primary energy	Tenaga akhir End-use energy	Semenanjung Malaysia Peninsular Malaysia	Sabah	Sarawak	Industri Industry	Komersial Commercial
2019	69.30	46.69	1.87	1.639	4.219	57	5.7
2020	70.02	42.50	1.560	1.609	4.157	54.9	5.2
2021	67.88	41.27	1.560	1.590	4.181	53.8	4.9
2022	69.06	39.64	1.780	1.530	2.82	44.6	5.0
2023 ^p	68.11	43.42	1.990	1.650	3.16	49.3	6.4
Nota: ^p Permulaan							
Notes: Preliminary							
Sumber: Suruhanjaya Tenaga							
Source: Energy Commission							

Jadual 2.16: Keluasan hutan yang dilesenkan untuk pengusahaan mengikut negeri, Malaysia, 2019-2023

Table 2.16: Forest area licensed for harvesting by state, Malaysia, 2019-2023

Negeri State	Hektar Hectares				
	2019	2020	2021	2022	2023
Malaysia	161,022	141,402	167,702	149,525	139,073
Semenanjung Malaysia Peninsular Malaysia	73,183	70,917	64,611	54,718	56,047
Johor	1,528	2,240	1,745	801	1,012
Kedah	1,812	5,085	6,947	2,986	4,970
Kelantan	20,196	15,815	12,927	14,740	14,547
Melaka	326	174	5	128	329
Negeri Sembilan	1,619	1,196	2,200	1,279	694
Pahang	30,243	30,930	25,463	18,469	16,741
Perak	8,838	10,052	6,333	7,974	6,136
Perlis	151	207	56	103	1,355
Pulau Pinang	-	10	5	6	-
Selangor	671	88	41	18	416
Terengganu	7,799	5,120	8,889	8,214	9,847
Sabah	6,381	18,997	38,908	49,984	24,508
Sarawak	82,458	51,488	59,183	44,823	58,518

Sumber: Jabatan Perhutanan Semenanjung Malaysia, Jabatan Perhutanan Sabah, Jabatan Hutan Sarawak
Source: Forest Department Peninsular Malaysia, Sabah Forestry Department, Forests Department Sarawak

Jadual 2.17: Keluasan bertanam¹ bagi tanaman terpilih, Malaysia, 2020-2024

Table 2.17: Planted area of selected crops, Malaysia, 2020-2024

Tanaman Crops	Hektar ('000) Hectares				
	2020	2021	2022	2023	2024
Kelapa sawit Oil palm	5,865.3	5,737.7	5,674.7	5,652.6	5,612.9
Getah ² Rubber	1,139.1	1,137.1	1,136.1	1,135.1	1,134.1
Padi Paddy	644.9	647.9	637.9	614.1	579.7
Lada Pepper	8.0	7.8	8.0	8.2	8.3
Koko Cocoa	5.9	6.0	6.0	6.1	6.2

Sumber: Jabatan Pertanian Malaysia, Lembaga Minyak Sawit Malaysia, Lembaga Koko Malaysia, Lembaga Lada Malaysia, Lembaga Getah Malaysia dan Pihak Berkuasa Kemajuan Pekebun Kecil Perusahaan Getah
Source: Department of Agriculture, Malaysia, Malaysian Palm Oil Board (MPOB), Malaysian Cocoa Board, Malaysian Pepper Board, Malaysian Rubber Board and Rubber Industry Smallholder Development Authority (RISDA)

Nota/ Notes:

¹Kelapa sawit, getah dan koko meliputi keluasan estet dan kebun kecil
Oil palm, rubber and cocoa covers area of estates and smallholdings

²Keluasan bertanam getah bagi kebun kecil adalah merujuk kepada Banci Pekebun Kecil RISDA 2013 meliputi kawasan di bawah RISDA, FELDA, FELCRA, KESEDAR, Lembaga Industri Getah Sabah (LIGS) dan Jabatan Pertanian Sarawak (JPS)
The rubber planted area for other smallholding refers to the 2013 RISDA Smallholders Census which covers area under RISDA, FELDA, FELCRA, KESEDAR, LIGS and JPS

Jadual 2.18: Pengeluaran produk kayu-kayan utama mengikut negeri, Malaysia, 2019-2023

Table 2.18: Production of major timber products by state, Malaysia, 2019-2023

Negeri/ Kawasan State/ Region	Tahun	Meter padu Cubic metres				
		Kayu balak ¹ Logs	Kayu gergaji Sawn timber	Papan lapis Plywood	Venir Veneer	Kayu kumai Moulding
Malaysia	2019	9,062,482	3,371,450	2,149,845	472,619	231,412
	2020	5,320,403	2,274,047	1,668,319	310,366	187,848
	2021	5,576,079	1,935,202	1,568,086	259,044	190,657
	2022	6,065,745	2,786,837	1,461,640	347,595	209,955
	2023	5,952,658	2,145,585	1,213,420	391,647	151,731
Semenanjung Malaysia Peninsular Malaysia	2019	3,913,306	2,666,296	365,298	93,876	191,612
	2020	2,222,503	1,776,543	285,661	80,484	163,962
	2021	2,113,053	1,440,205	247,623	82,197	153,958
	2022	2,778,340	2,311,024	216,696	93,250	171,260
	2023	2,823,606	1,672,075	210,334	134,183	116,678
Johor	2019	35,007	450,215	13,290	12,028	4,122
	2020	21,307	324,876	12,096	9,930	7,470
	2021	4,202	129,592	14,278	4,302	5,932
	2022	11,364	174,221	12,399	8,213	8,736
	2023	2,488	188,911	19	10,693	6,755
Kedah	2019	162,218	42,212	117,891	16,272	978
	2020	85,102	34,814	70,110	18,193	611
	2021	127,877	32,500	72,108	12,978	691
	2022	206,339	48,007	54,406	14,830	1,641
	2023	245,904	66,092	54,542	25,570	1,452
Kelantan	2019	1,181,211	470,002	13,437	36,402	-
	2020	584,701	287,457	20,783	38,543	-
	2021	641,337	254,655	8,474	36,777	-
	2022	716,270	962,469	7,095	43,287	-
	2023	703,714	394,154	13,988	72,315	-
Melaka	2019	28	48,809	-	-	-
	2020	-	32,170	-	-	-
	2021	-	28,767	-	-	-
	2022	-	41,971	-	1,476	-
	2023	-	22,289	-	1,968	-
Negeri Sembilan	2019	42,575	196,168	13,083	-	5,928
	2020	30,702	153,511	7,896	-	553
	2021	44,430	119,864	2,784	-	248
	2022	26,808	97,626	5,770	-	454
	2023	13,098	97,289	3,958	2,091	581
Pahang	2019	1,677,034	747,654	122,477	3,739	108,903
	2020	945,482	514,684	71,818	3,846	94,003
	2021	771,684	466,577	39,617	8,582	90,423
	2022	1,132,953	551,617	37,664	2,574	94,083
	2023	1,031,791	570,437	24,011	2,167	72,345
Perak	2019	417,932	266,267	67,301	22,698	10,301
	2020	329,233	180,909	79,821	6,142	8,935
	2021	260,240	157,994	71,861	16,284	12,226
	2022	353,306	160,438	75,938	13,935	12,537
	2023	348,686	102,069	76,735	11,276	1,195

Jadual 2.18: Pengeluaran produk kayu-kayan utama mengikut negeri, Malaysia, 2019-2023 (samb.)

Table 2.18: Production of major timber products by state, Malaysia, 2019-2023 (cont'd)

Negeri/ Kawasan State/ Region	Tahun					
		Kayu balak ¹ Logs	Kayu gergaji Sawn timber	Papan lapis Plywood	Venir Veneer	Kayu kumai Moulding
Perlis	2019	211	-	-	-	-
	2020	35,741	-	-	-	-
	2021	51,283	-	-	-	-
	2022	46,388	-	-	-	-
	2023	50,052	-	-	-	-
Pulau Pinang	2019	-	48,700	16,210	2,187	7,923
	2020	41	43,965	22,397	1,276	6,028
	2021	27	27,563	38,168	263	6,536
	2022	18	34,699	21,304	1,003	6,685
	2023	-	21,274	37,078	488	4,857
Selangor ²	2019	853	75,927	1,005	-	20,277
	2020	233	53,613	740	67	18,795
	2021	134	44,453	333	148	15,355
	2022	-	63,790	120	6,049	19,502
	2023	-	65,947	-	4,584	14,164
Terengganu	2019	396,237	320,342	604	550	33,180
	2020	189,917	150,544	-	2,487	27,567
	2021	211,839	178,240	-	2,863	22,547
	2022	284,894	176,186	-	1,883	27,622
	2023	427,873	143,613	-	3,031	15,329
Sabah	2019	1,074,922	238,671	423,981	59,082	27,705
	2020	680,800	156,263	277,435	31,366	16,521
	2021	1,128,116	191,373	375,558	50,879	28,437
	2022	1,021,434	209,756	344,687	85,088	31,346
	2023	816,287	217,977	253,997	54,980	26,748
Sarawak	2019	4,074,254	466,483	1,360,566	319,661	12,094
	2020	2,417,100	341,321	1,113,259	198,516	7,365
	2021	2,334,910	303,624	944,905	125,968	8,262
	2022	2,265,971	266,057	900,257	169,257	7,349
	2023	2,312,765	255,533	749,809	202,484	8,305

Sumber: Jabatan Perhutanan Semenanjung Malaysia, Jabatan Perhutanan Sabah dan Jabatan Hutan Sarawak
Source: Forest Department Peninsular Malaysia, Sabah Forestry Department and Forests Department Sarawak

Nota/ Notes:

¹ Tidak termasuk pengeluaran kayu getah, kayu jaras, batang kelapa dan batang kelapa sawit
Exclude production of hevea logs, poles, coconut trunks and oil palm trunks

² Termasuk W.P. Kuala Lumpur
Includes W.P. Kuala Lumpur

Data merujuk kepada syarikat yang berdaftar dengan Jabatan Perhutanan Semenanjung Malaysia, Jabatan Perhutanan Sabah, Jabatan Hutan Sarawak dan Perbadanan Kemajuan Perusahaan Kayu Sarawak sahaja
Data refers to establishment registered with Forest Department Peninsular Malaysia, Sabah Forestry Department, Forests Department Sarawak and Sarawak Timber Industry Development Corporation only

Jadual 2.19: Pengeluaran akuakultur, Malaysia, 2020-2024

Table 2.19: Aquaculture production, Malaysia, 2020-2024

Tahun Year	Air tawar Freshwater	Air payau/masin Brackishwater	Tan metrik Metric tonnes
			Jumlah Total
2020	97,210.3	302,807.3	400,017.6
2021	105,904.0	311,283.7	417,187.7
2022	115,868.1	457,814.2	573,682.3
2023	113,010.6	393,796.9	506,807.5
2024	119,493.1	392,367.2	511,860.3

Sumber: Jabatan Perikanan Malaysia
Source: Department of Fisheries Malaysia

Jadual 2.20: Bilangan, keluasan dan pengeluaran akuakultur air tawar, Malaysia, 2020-2024

Table 2.20: Number, area and production of freshwater aquaculture, Malaysia, 2020-2024

Sistem ternakan Culture system	Perkara Items	2020	2021	2022	2023	2024
Jumlah pengeluaran (tan metrik) <i>Total productions (tonnes)</i>		104,601.6	97,210.3	115,868.1	113,010.6	119,493.1
Bekas lombong <i>Ex-mining pool</i>	Bilangan <i>Number</i>	657	713	707	705	1,103
	Luas (hektar) <i>Area (hectare)</i>	3,033.0	3,243.6	3,353.2	3,430.0	3,315.4
	Pengeluaran (tan metrik) <i>Production (tonnes)</i>	18,845.1	19,936.5	21,271.9	21,882.2	25,354.1
Kandang <i>Pen culture</i>	Bilangan <i>Number</i>	317	841	198	211	198
	Luas (hektar) <i>Area (hectare)</i>	8.0	9.2	7.9	4.0	3.0
	Pengeluaran (tan metrik) <i>Production (tonnes)</i>	678.1	571.0	657.0	697.1	517.7
Kolam <i>Ponds</i>	Bilangan <i>Number</i>	34,674	36,224	35,509	35,748	24,390
	Luas (hektar) <i>Area (hectare)</i>	3,725.3	3,754.6	3,873.4	3,537.7	2,826.1
	Pengeluaran (tan metrik) <i>Production (tonnes)</i>	56,197.5	61,018.0	63,298.1	63,009.0	65,623.8
Sangkar <i>Cages</i>	Bilangan <i>Number</i>	30,416	34,841	36,589	35,082	40,019
	Luas (m ²) <i>Area</i>	550,037.0	617,112.0	2,715,869.0	574,963	597,320.0
	Pengeluaran (tan metrik) <i>Production (tonnes)</i>	15,736.4	19,492.5	24,626.5	21,997.3	23,274.3
Tangki kanvas <i>Canvas tank</i>	Bilangan <i>Number</i>	964	752	753	851	1,156
	Luas (m ²) <i>Area</i>	21,248.0	36,515.1	42,636.9	52,741.0	110,081.0
	Pengeluaran (tan metrik) <i>Production (tonnes)</i>	209.2	309.3	369.8	449.3	656.2
Tangki simen <i>Cement tank</i>	Bilangan <i>Number</i>	5,656	6,467	6,645	7,010	5,552
	Luas (m ²) <i>Area</i>	396,746.00	492,661.40	627,852.0	468,161.0	439,955.0
	Pengeluaran (tan metrik) <i>Production (tonnes)</i>	5,515.50	4,574.41	5,595.0	5,012.3	4,057.5
Estet <i>Estate</i>	Bilangan <i>Number</i>	7	8	8	7	7
	Luas (hektar) <i>Area (hectare)</i>	123	163	169.3	119	119.3
	Pengeluaran (tan metrik) <i>Production (tonnes)</i>	28.6	2.4	49.8	23.4	9.6

Nota: Tidak termasuk sistem ternakan akuakultur air tawar yang tidak beroperasi
Notes: Excludes freshwater aquaculture system which do not operate

Sumber: Jabatan Perikanan Malaysia
Source: Department of Fisheries Malaysia

Jadual 2.21: Bilangan, keluasan dan pengeluaran daripada akuakultur air payau/masin, Malaysia, 2020-2024

Table 2.21: Number, area and production from brackishwater aquaculture, Malaysia, 2020-2024

Sistem ternakan <i>Culture system</i>	Perkara <i>Item</i>	2020	2021	2022	2023	2024
Jumlah pengeluaran (tan metrik) <i>Total production (tonnes)</i>		302,807.3	311,283.7	457,814.2	393,796.9	392,367.2
Kandang air payau <i>Brackishwater pen culture</i>	Bilangan <i>Number</i>	1,278	1,054	1,894	312	1,520
	Luas (hektar) <i>Area (hectare)</i>	39.2	3.67	85.5	63.7	40.1
	Pengeluaran (tan metrik) <i>Production (tonnes)</i>	224.4	160.22	341.9	552.1	553.4
Kolam <i>Ponds</i>	Bilangan <i>Number</i>	10,698	11,859	11,917	12,511	11,115
	Luas (hektar) <i>Area (hectare)</i>	7,511.0	7,728.9	7,857.9	8,555.0	8,011.0
	Pengeluaran (tan metrik) <i>Production (tonnes)</i>	66,929.5	85,594.5	100,463.0	117,610.5	120,129.5
Rumpai laut <i>Seaweeds</i>	Luas (hektar) <i>Area (hectare)</i>	9,828.0	2,827	4,464	3,534	3,690
	Pengeluaran (tan metrik) <i>Production (tonnes)</i>	182,061.0	178,888.1	307,964.9	225,077.6	220,263.5
Sangkar <i>Cages</i>	Bilangan <i>Number</i>	99,904	96,086	95,326	94,948	86,282
	Luas (hektar) <i>Area (hectare)</i>	2,304,473.0	2,264,034.0	2,636,780	2,635,305	2,276,510
	Pengeluaran (tan metrik) <i>Production (tonnes)</i>	32,943.2	27,582.4	26,733.6	31,935.0	30,960.6
Tangki air payau <i>Brackishwater tanks</i>	Bilangan <i>Number</i>	1056	2,045	3,972	4,913	4,250
	Luas (hektar) <i>Area (hectare)</i>	239,000.0	462,671.0	237,044	222,806	379,021
	Pengeluaran (tan metrik) <i>Production (tonnes)</i>	132.8	442.58	1165.7	747.6	519.4
Kerang-kerangan <i>Molluscs</i>	Bilangan <i>Number</i>	1,369	2,955	3,875	4,571	15,090
	Luas (hektar) <i>Area (hectare)</i>	9,714.0	5,484.0	5,783	5,714	5,616
	Pengeluaran (tan metrik) <i>Production (tonnes)</i>	20,516.4	18,615.8	21,145.0	17,874.2	19,940.8

Nota: Tidak termasuk sistem ternakan akuakultur air payau/masin yang tidak beroperasi
Notes: Excludes brackishwater aquaculture culture systems which do not operate

Sumber: Jabatan Perikanan Malaysia
Source: Department of Fisheries Malaysia

Jadual 2.22: Anggaran kuantiti pengeluaran akuakultur air tawar mengikut spesis, Malaysia, 2020-2024

Table 2.22: Estimated quantities of freshwater aquaculture production by species, Malaysia, 2020-2024

Tan metrik
Metric tonnes

Spesis <i>Species</i>	2020	2021	2022	2023	2024
Jumlah <i>Total</i>	97,210.6	105,904.0	115,868.1	113,070.6	119,493.1
Lampam jawa <i>Javanese carp</i>	1147.1	710.7	974.0	1,082.6	1,473.8
Lee koh <i>Common carp</i>	1110.9	958.5	1,611.9	1,262.6	2,427.0
Kap rumput <i>Grass carp</i>	414.8	495.9	897.0	608.8	629.8
Kap kepala besar <i>Big head carp</i>	2228.9	2254.2	3,970.0	4,017.1	3,982.7
Udang galah <i>Giant freshwater prawn</i>	192.7	207.0	183.3	189.1	237.7
Tilapia hitam <i>Black tilapia</i>	3453.4	4671.2	3,863.3	4,482.8	4,563.9
Tilapia merah <i>Red tilapia</i>	28009.2	30022.5	27,926.9	24,271.5	21,049.7
Jelawat <i>River carp</i>	2680.0	3232.7	3,076.5	3,113.7	4,335.0
Keli <i>Freshwater catfish</i>	29012.8	31957.8	39,815.3	42,092.9	45,018.6
Ketutu <i>Goby</i>	7.9	18.6	30.2	94.1	63.8
Udang Kara <i>Crayfish</i>	64.4	80.5	80.2	83.9	22.5
Patin <i>River catfish</i>	18227.3	21144.2	20,861.9	18,812.9	20,944.1
Toman <i>Giant snakehead</i>	136.6	258.5	350.2	446.9	913.4
Baung <i>Channel catfish</i>	1391.7	1337.7	1,447.8	2,413.6	2,739.4
Lain-lain <i>Others</i>	9132.6	8554.0	10,779.7	12,595.7	9,865.6

Sumber: Jabatan Perikanan Malaysia
Source: Department of Fisheries Malaysia

Jadual 2.23: Anggaran kuantiti pengeluaran akuakultur air payau/ masin mengikut spesis, Malaysia, 2020-2024

Table 2.23: *Estimated quantities of brackishwater aquaculture production by species, Malaysia, 2020-2024*

Tan metrik
Metric tonnes

Spesis Species	2020	2021	2022	2023	2024
Jumlah <i>Total</i>	302,807.30	311,283.67	457,814.2	393,796.9	392,367.2
Siakap <i>Seabass</i>	23,033.8	34,186.7	43,734.5	55,284.4	60,912.1
Siakap merah <i>Mangrove red snapper</i>	10.0	47.0	76.9	107.9	998.5
Kerapu ¹ <i>Grouper¹</i>	3,752.8	2,625.2	3,956.0	5,576.8	4,151.6
Jenahak <i>Mangrove snapper</i>	6,859.0	5,792.6	4,616.9	5,770.2	5,415.6
Udang putih <i>Hawaiian white shrimp</i>	35,148.7	38,376.8	39,557.8	34,375.2	38,668.3
Udang harimau <i>Tiger prawn</i>	13,524.8	18,119.6	15,329.9	18,703.4	22,302.5
Ketam nipah <i>Mud crab</i>	210.3	205.8	334.2	278.3	154.4
Tilapia merah <i>Red tilapia</i>	514.0	934.5	1,705.0	1,342.0	1,228.8
Merah <i>Red snapper</i>	7,256.5	5,370.7	5,244.0	7,158.4	6,541.3
Kerang dewasa <i>Cockles</i>	18,674.4	16,988.6	19,026.5	15,147.3	16,304.4
Siput sudu <i>Mussels</i>	1,363.1	1,472.5	1,908.3	2,459.1	3,119.0
Tiram <i>Oysters</i>	135.5	118.9	154.4	150.1	140.7
Rumpai laut <i>Seaweeds</i>	182,061.0	178,896.7	307,972.5	225,086.4	220,267.5
Lain-lain <i>Others</i>	10,263.4	8,148.1	14,197.4	22,357.3	12,162.4

Sumber: Jabatan Perikanan Malaysia
Source: Department of Fisheries Malaysia

Nota: ¹Termasuk kerapu bara, kerapu harimau, kerapu hybrid, kerapu kertang, kerapu sunoh dan kerapu tikus/ mameng
Notes: Includes blacktip grouper, brown marbled grouper, hybrid grouper, Atlantic goliath grouper, spotted coral grouper and mouse grouper

Jadual 2.24: Pendaratan ikan laut mengikut negeri, Malaysia, 2020-2024

Table 2.24: Landings of marine fish by state, Malaysia, 2020-2024

Negeri State	Tan metrik ('000) Metric tonnes									
	2020		2021		2022		2023		2024	
	Kuantiti Quantity	%	Kuantiti Quantity	%	Kuantiti Quantity	%	Kuantiti Quantity	%	Kuantiti Quantity	%
Jumlah Total	1,383.3	100.0	1,328.0	100.0	1,308.4	100.0	1,270.3	100.0	1,392.1	100.0
Johor	70.2	5.1	51.4	3.9	57.7	4.4	49.8	3.9	59.1	4.2
Kedah	134.4	9.7	122.8	9.2	140.9	10.8	141.3	11.1	104.3	7.5
Kelantan	73.6	5.3	58.3	4.4	55.1	4.2	60.0	4.7	58.1	4.2
Melaka	1.8	0.1	2.1	0.2	2.0	0.2	2.0	0.2	2.1	0.1
Negeri Sembilan	0.6	0.0	0.6	0.0	0.6	0.0	0.5	0.0	0.6	0.0
Pahang	101.3	7.3	94.8	7.1	108.0	8.3	116.2	9.1	144.7	10.4
Pulau Pinang	56.8	4.1	35.4	2.7	47.6	3.6	38.2	3.0	39.2	2.8
Perak	328.3	23.7	358.4	27.0	301.4	23.0	335.9	26.4	434.3	31.2
Perlis	69.4	5.0	33.1	2.5	38.0	2.9	34.1	2.7	28.1	2.0
Selangor	161.0	11.6	167.6	12.6	171.1	13.1	120.6	9.5	163.7	11.8
Terengganu	37.2	2.7	30.6	2.3	33.7	2.6	45.7	3.6	39.7	2.8
Sabah	206.7	14.9	216.3	16.3	230.2	17.6	212.8	16.8	201.8	14.5
Sarawak	124.5	9.0	138.9	10.5	103.8	7.9	94.3	7.4	96.1	6.9
W.P. Labuan	17.5	1.3	17.7	1.3	18.4	1.4	18.8	1.5	20.3	1.5

Sumber: Jabatan Perikanan Malaysia
Source: Department of Fisheries Malaysia

Jadual 2.25: Pendaratan tahunan ikan laut mengikut kumpulan peralatan menangkap ikan, Malaysia, 2020-2024

Table 2.25: Annual landings of marine fish by fishing gear group, Malaysia, 2020-2024

Tan metrik
Metric tonnes

Kumpulan peralatan menangkap ikan Fishing gear group	2020	2021	2022	2023	2024
Jumlah Total	1,383,299	1,328,041	1,308,402	1,270,277	1,392,130
Belat Stationary traps	1,504	1,635	2,212	2,311	2,480
Bubu Portable traps	22,094	22,809	19,339	20,378	20,601
Memungut siput Shellfish collection	4,350	5,595	6,600	6,092	6,587
Pancing Hooks & lines	39,743	49,500	46,174	51,669	47,108
Pukat bakul Bag nets	12,838	18,636	12,437	10,016	11,442
Pukat hanyut Drift/ gill nets	268,177	301,991	300,132	281,816	286,672
Pukat jerut bilis Anchovy purse seines	12,910	5,299	6,030	9,239	9,345
Pukat jerut ikan Fish purse seines	335,329	268,084	253,974	265,012	326,782
Pukat rentang Barrier nets	2,295	8,274	1,733	2,370	4,085
Pukat surung Push/ scoop nets	5,725	7,283	5,851	7,020	5,808
Pukat tangguk Lift nets	18,486	16,324	15,331	15,236	15,675
Pukat tunda Trawl nets	619,188	574,836	592,145	558,207	622,894
Pukat tarik lain Other seines	27,481	20,796	17,213	17,085	15,405
Rampaian Miscellaneous	13,180	26,980	29,233	23,827	17,245

Sumber: Jabatan Perikanan Malaysia
Source: Department of Fisheries Malaysia

Jadual 2.26: Pengeluaran perikanan terpilih, Malaysia, 2020-2024

Table 2.26: Production for selected fisheries, Malaysia, 2020-2024

Jenis Type	Tan metrik Metric tonnes				
	2020	2021	2022	2023	2024
Bawal Pomfret	16,917.8	20,065.5	17,917.9	18,466.3	24,401.6
Cencaru Torpedo scad	26,471.4	28,701.0	25,922.5	36,695.0	29,125.3
Keli Freshwater catfish	29,012.8	31,957.8	39,815.3	42,092.9	45,018.6
Kerisi Threadfin bream	41,072.3	36,974.6	44,983.2	43,286.1	41,609.9
Ketam Crab	14,326.6	15,939.6	15,885.0	14,345.8	17,280.6
Mackerel	168,227.5	161,146.5	155,528.5	142,347.6	142,015.8
Ikan merah Red snapper	7,256.5	5,370.7	5,243.9	14,037.2	13,701.8
Pari Stingray	9,822.8	10,124.5	10,980.2	11,317.8	12,992.3
Patin River catfish	18,227.3	21,144.2	20,861.9	18,812.9	20,944.1
Selayang Sardine	79,067.7	60,325.4	59,810.0	75,596.0	94,234.3
Siakap Seabass	26,355.8	38,063.8	48,070.0	58,390.3	65,317.6
Sotong Cuttlefish	62,582.9	57,157.3	59,472.0	58,385.4	58,624.2
Tilapia	33,917.6	38,543.9	35,292.4	33,002.8	30,950.3
Tuna	84,481.0	66,510.1	69,355.7	69,335.5	72,388.1
Udang Shrimp	156,237.3	173,593.1	152,789.5	151,318.9	164,141.9

Nota: Berdasarkan penerbitan Akaun Pembekalan dan Penggunaan Komoditi Pertanian Terpilih, Malaysia, 2020-2024

Note: Based on Supply and Utilization Accounts Selected Agricultural Commodities, Malaysia, 2020-2024 publication

Jadual 2.27: Import perikanan terpilih, Malaysia, 2020-2024

Table 2.27: Imports for selected fisheries, Malaysia, 2020-2024

Tan metrik
Metric tonnes

Jenis Type	2020	2021	2022	2023	2024
Bawal Pomfret	8,859.2	10,961.7	12,263.7	10,679.3	7,063.7
Cencaru Torpedo scad	1,091.7	2,547.3	2,818.7	1,327.4	940.7
Keli Freshwater catfish	1,578.0	359.5	832.0	621.9	4,754.6
Kerisi Threadfin bream	78.4	338.8	801.0	241.1	96.3
Ketam Crab	4,993.4	5,611.6	3,820.0	4,997.2	4,723.1
Mackerel	28,444.2	29,912.3	55,518.9	54,063.0	50,385.7
Ikan merah Red snapper	1,330.9	1,929.4	1,882.1	1,790.3	219.5
Pari Stingray	1,954.8	722.7	3,080.2	2,490.8	1,889.8
Patin River catfish	-	-	5.7	5.0	-
Selayang Sardine	19,328.3	20,530.7	23,867.3	15,934.9	15,799.0
Siakap Seabass	1,307.3	1,214.0	996.5	1,349.3	543.0
Sotong Cuttlefish	33,775.4	46,707.2	56,869.9	61,375.5	57,062.7
Tilapia	468.2	959.8	1,555.3	1,535.9	1,092.1
Tuna	1,827.4	3,911.0	2,601.8	1,529.0	1,215.7
Udang Shrimp	26,853.2	33,451.5	38,425.1	41,898.0	39,174.9

Nota: Berdasarkan penerbitan Akaun Pembekalan dan Penggunaan Komoditi Pertanian Terpilih, Malaysia, 2020-2024

Note: Based on Supply and Utilization Accounts Selected Agricultural Commodities, Malaysia, 2020-2024 publication

Jadual 2.28: Eksport perikanan terpilih, Malaysia, 2020-2024

Table 2.28: Exports for selected fisheries, Malaysia, 2020-2024

					Tan metrik Metric tonnes
Jenis Type	2020	2021	2022	2023	2024
Bawal Pomfret	932.6	1,310.6	1,419.6	1,313.2	193.6
Cencaru Torpedo scad	185.7	656.9	455.3	564.1	177.9
Keli Freshwater catfish	1,252.1	2,819.9	1,674.5	1,145.3	1,004.0
Kerisi Threadfin bream	98.9	244.5	490.9	275.0	56.4
Ketam Crab	4,121.8	6,278.1	3,454.8	6,047.2	4,814.2
Mackerel	5,836.8	31,010.5	12,104.9	5,906.5	14,532.4
Ikan merah Red snapper	997.6	1,343.1	875.7	788.4	70.5
Pari Stingray	196.7	375.8	289.1	295.7	107.0
Patin River catfish	60.3	4.0	-	-	-
Selayang Sardine	397.5	340.3	775.2	811.4	660.6
Siakap Seabass	106.1	169.7	7,811.4	10,400.2	12,775.2
Sotong Cuttlefish	31,602.3	32,386.6	35,790.6	40,866.1	37,623.4
Tilapia	439.0	575.5	560.0	859.8	468.5
Tuna	8,134.9	3,102.0	3,200.4	6,954.4	6,734.1
Udang Shrimp	29,408.3	34,159.6	32,906.6	31,823.9	28,346.1

Nota: Berdasarkan penerbitan Akaun Pembekalan dan Penggunaan Komoditi Pertanian Terpilih, Malaysia, 2020-2024

Note: Based on Supply and Utilization Accounts Selected Agricultural Commodities, Malaysia, 2020-2024 publication

Jadual 2.29: Pengeluaran tanaman terpilih, Malaysia, 2020-2024

Table 2.29: Production of selected crops, Malaysia, 2020-2024

					Tan metrik ('000) Metric tonnes
Pengeluaran Production	2020	2021	2022	2023	2024
Buah tandan segar Fresh fruit bunches	96,969.3	91,393.7	94,814.5	94,952.5	100,163.5
Getah asli Natural rubber	514.7	469.7	377.0	347.9	386.5
Padi Paddy	2,356.0	2,429.0	2,281.7	2,175.1	2,059.1
Lada Pepper	30.8	31.6	32.7	32.0	34.4
Biji koko Cocoa beans	0.7	0.5	0.5	0.3	0.4

Sumber: Jabatan Pertanian Malaysia, Lembaga Minyak Sawit Malaysia, Lembaga Koko Malaysia, Lembaga Lada Malaysia, Lembaga Getah Malaysia dan Pihak Berkuasa Kemajuan Pekebun Kecil Perusahaan Getah

Source: Department of Agriculture, Malaysia, Malaysian Palm Oil Board (MPOB), Malaysian Cocoa Board, Malaysian Pepper Board, Malaysian Rubber Board and Rubber Industry Smallholder Development Authority (RISDA)

Jadual 2.30: Pengeluaran buah-buahan terpilih, Malaysia, 2020-2024

Table 2.30: Production for selected fruits, Malaysia, 2020-2024

Tan metrik ('000)
Metric tonnes

Jenis Type	2020	2021	2022	2023	2024
Belimbing Starfruit	9,295.8	7,894.5	6,616.1	6,351.1	7,388.5
Betik Papaya	61,775.7	60,979.6	54,753.1	54,766.7	46,975.5
Buah naga Dragon fruit	8,562.6	11,201.0	27,719.2	36,155.9	26,997.8
Cempedak/ nangka Jackfruit	60,093.5	66,532.8	60,223.2	60,216.6	64,050.6
Durian	390,635.4	448,271.5	455,457.7	592,052.6	568,806.8
Jagung manis Sweet corn	68,207.4	74,735.0	63,154.7	63,508.0	58,649.9
Jambu batu Guava	37,881.2	36,899.6	33,292.4	44,674.3	48,155.9
Kelapa Coconut	560,984.3	556,217.1	604,428.4	626,557.3	673,553.4
Langsat	17,469.7	15,207.1	10,904.9	9,566.7	8,415.0
Limau besar/ bali Pomelo	16,040.2	15,837.9	13,220.6	17,051.8	23,552.5
Mangga Mango	12,834.4	12,208.3	9,219.3	9,213.5	8,628.2
Manggis Mangosteen	23,296.6	26,831.5	23,508.4	22,073.2	30,230.9
Nanas Pineapple	323,420.5	375,423.2	537,231.4	440,848.5	516,870.3
Pisang Banana	313,811.3	330,253.1	330,601.1	343,203.2	335,444.0
Rambutan	49,957.6	55,627.8	52,096.9	52,551.7	56,333.3
Tembikai Watermelon	134,225.4	127,834.7	135,682.5	150,243.3	167,611.1

Nota: Berdasarkan penerbitan Akaun Pembekalan dan Penggunaan Komoditi Pertanian Terpilih, Malaysia, 2020-2024

Note: Based on Supply and Utilization Accounts Selected Agricultural Commodities, Malaysia, 2020-2024 publication

Jadual 2.31: Import buah-buahan terpilih, Malaysia, 2020-2024

Table 2.31: Imports for selected fruits, Malaysia, 2020-2024

Tan metrik
Metric tonnes

Jenis Type	2020	2021	2022	2023	2024
Belimbing Starfruit	0.7	0.4	0.2	0.1	0.1
Betik Papaya	307.4	311.5	502.1	1,057.4	930.6
Buah naga Dragon fruit	2,454.6	2,582.1	2,843.6	2,994.5	4,133.0
Cempedak/ nangka Jackfruit	227.4	768.5	73.0	924.8	347.8
Durian	4,01.9	6,727.7	6,802.0	18,928.2	10,563.3
Epal Apple	105,736.50	105,635.00	103,899.4	101,362.8	100,419.3
Jagung manis Sweet corn	3,287.9	3,782.7	2,722.1	2,322.0	2,041.5
Jambu batu Guava	4146.1	3,197.0	4,460.8	3,454.0	3,676.7
Kelapa Coconut	286,031.2	254455.2	252,091.4	271,733.2	305,385.1
Langsat	11,61.9	1,042.8	533.3	3,031.6	2,686.1
Limau besar/ bali Pomelo	1,737.40	3,068.4	2,650.9	2,144.9	2,956.3
Mangga Mango	54,878.1	69,646.3	22,941.6	50,047.2	48,838.0
Manggis Mangosteen	4,029.8	3,970.70	4,664.2	3,134.0	3,823.8
Nanas Pineapple	1,587.1	1,119.1	1,186.9	1,003.0	880.1
Pisang Banana	27,898.0	23,701.3	19,535.4	35,456.7	32,862.1
Rambutan	1,714.3	2,126.4	2,798.0	1,783.4	1,817.8
Tembikai Watermelon	7,394.1	6,868.6	7,905.4	10,907.8	16,937.2

Nota: Berdasarkan penerbitan Akaun Pembekalan dan Penggunaan Komoditi Pertanian Terpilih, Malaysia, 2020-2024

Note: Based on Supply and Utilization Accounts Selected Agricultural Commodities, Malaysia, 2020-2024 publication

Jadual 2.32: Eksport buah-buahan terpilih, Malaysia, 2020-2024

Table 2.32: Exports for selected fruits, Malaysia, 2020-2024

Tan metrik

Jenis Type	2020	2021	2022	2023	2024
Belimbing Starfruit	1,373.2	1,131.1	1,105.1	1,057.0	1,433.9
Betik Papaya	22,487.2	19,786.8	16,766.9	14,272.1	14,918.6
Buah naga Dragon fruit	3,886.8	5,323.9	5,300.5	5,415.7	4,901.0
Cempedak/ nangka Jackfruit	5,649.8	7,260.3	7,576.6	6,087.6	6,226.2
Durian	24,098.9	42,765.7	43,864.5	41,633.0	30,809.8
Jagung manis Sweet corn	6,882.6	8,187.6	7,730.8	8,224.3	9,187.0
Jambu batu Guava	2,916.2	3,463.1	3,798.2	4,245.3	4,109.7
Kelapa Coconut	4,659.2	11,025.4	12,580.7	8,497.6	8,217.1
Langsat	540.8	2,363.4	657.5	5,527.8	200.6
Limau besar/ bali Pomelo	3,061.8	3,999.4	3,631.9	3,186.6	2,738.8
Mangga Mango	4,076.0	6,656.0	3,377.4	10,864.4	15,618.8
Manggis Mangosteen	2,309.9	2,205.5	2,186.0	1,907.7	2,568.6
Nanas Pineapple	15,960.6	16,427.8	14,455.6	12,801.4	11,632.7
Pisang Banana	28,059.3	32,084.9	17,107.3	24,466.4	23,712.1
Rambutan	767.7	1,798.9	945.1	1,806.2	1,496.7
Tembikai Watermelon	45,324.3	43,067.9	40,721.1	44,078.5	48,444.8

Nota: Berdasarkan penerbitan Akaun Pembekalan dan Penggunaan Komoditi Pertanian Terpilih, Malaysia, 2020-2024

Note: Based on Supply and Utilization Accounts Selected Agricultural Commodities, Malaysia, 2020-2024 publication

Jadual 2.33: Pengeluaran sayur-sayuran terpilih, Malaysia, 2020-2024

Table 2.33: Production for selected vegetables, Malaysia, 2020-2024

Jenis Type	Tan metrik Metric tonnes				
	2020	2021	2022	2023	2024
Bayam Spinach	74,250.8	80,404.4	79,751.6	82,993.6	85,155.4
Bendi Lady's finger	57,860.6	63,062.4	63,074.3	65,697.9	70,202.6
Cili Chilli	30,190.9	31,418.3	33,616.6	41,358.6	45,058.2
Kacang buncis French bean	10,451.2	10,449.9	12,237.2	11,739.6	14,880.4
Kacang panjang Long bean	52,638.3	60,153.1	60,137.1	57,445.3	62,894.3
Kobis bulat Round cabbage	80,641.2	91,389.1	120,161.0	108,748.6	119,803.4
Salad Lettuce	54,583.7	75,546.0	102,015.0	103,542.1	148,196.5
Sawi Mustard	143,286.3	153,270.8	144,236.4	154,810.9	157,360.6
Terung Brinjal	39,785.7	42,731.6	46,128.8	45,776.5	56,468.9
Timun Cucumber	101,482.0	19,353.1	102,368.7	112,344.8	106,784.6
Tomato	192,129.5	186,662.6	194,305.2	188,842.2	259,178.9

Nota: Berdasarkan penerbitan Akaun Pembekalan dan Penggunaan Komoditi Pertanian Terpilih, Malaysia, 2020-2024

Note: Based on Supply and Utilization Accounts Selected Agricultural Commodities, Malaysia, 2020-2024 publication

Jadual 2.34: Import sayur-sayuran terpilih, Malaysia, 2020-2024

Table 2.34: Imports for selected vegetables, Malaysia, 2020-2024

Jenis Type	Tan metrik Metric tonnes				
	2020	2021	2022	2023	2024
Bayam Spinach	891.3	1,274.0	1,205.4	1,553.2	1,739.2
Bendi Lady's finger	411.0	630.7	846.0	993.1	847.0
Cili Chilli	66,294.9	73,725.9	77,857.6	70,922.4	83,853.0
Kacang buncis French bean	347.5	609.4	650.8	840.9	754.2
Kacang panjang Long bean	900.1	1,129.5	1,472.4	1,971.7	1,976.7
Kobis bulat Round cabbage	13,6747.9	139,035.7	146,331.9	160,563.7	171,544.2
Salad Lettuce	7,425.9	7,644.4	7,018.3	7,633.9	9,073.1
Sawi Mustard	10,209.3	11,051.6	12,019.1	9,357.8	6,903.5
Terung Brinjal	25,24.9	3,945.8	4,288.7	3,926.8	4,804.3
Timun Cucumber	8,752.8	12,523.2	12,085.9	12,015.3	12,351.5
Tomato	1590.0	6845.2	5,742.1	6,899.1	7,021.8

Nota: Berdasarkan penerbitan Akaun Pembekalan dan Penggunaan Komoditi Pertanian Terpilih, Malaysia, 2020-2024

Note: Based on Supply and Utilization Accounts Selected Agricultural Commodities, Malaysia, 2020-2024 publication

Jadual 2.35: Eksport sayur-sayuran terpilih, Malaysia, 2020-2024

Table 2.35: Exports for selected vegetables, Malaysia, 2020-2024

Jenis Type	Tan metrik Metric tonnes				
	2020	2021	2022	2023	2024
Bayam Spinach	8,826.8	9,904.7	8,189.2	7,556.1	7,370.1
Bendi Lady's finger	1,647.7	3,255.5	2,942.3	3,413.6	3,944.1
Cili Chilli	3,052.5	4,243.5	3,890.2	3,896.6	3,198.4
Kacang buncis French bean	3,703.7	4,120.2	3,026.5	3,163.8	3,513.0
Kacang panjang Long bean	4,417.1	6,239.1	5,208.6	6,112.8	5,208.6
Kobis bulat Round cabbage	2,293.6	3,547.0	2,778.2	3,825.3	3,731.5
Salad Lettuce	14,129.4	12,919.9	13,947.4	14,571.2	15,091.8
Sawi Mustard	6,613.1	6,345.2	5,847.1	4,262.8	1,107.7
Terung Brinjal	6,875.2	7,690.5	7,134.9	8,445.3	7,034.4
Timun Cucumber	19,709.7	22,644.7	21,893.7	18,428.7	18,122.3
Tomato	38,391.0	36,457.5	35,425.6	34,754.0	36,855.9

Nota: Berdasarkan penerbitan Akaun Pembekalan dan Penggunaan Komoditi Pertanian Terpilih, Malaysia, 2020-2024

Note: Based on Supply and Utilization Accounts Selected Agricultural Commodities, Malaysia, 2020-2024 publication

Jadual 2.36: Pengeluaran tanaman lain terpilih, Malaysia, 2020-2024

Table 2.36: Production for other selected crops, Malaysia, 2020-2024

					Tan metrik Metric tonnes
Jenis Type	2020	2021	2022	2023	2024
Bawang besar Onion	-	-	-	-	-
Bawang kecil Shallot	-	-	-	-	11.9
Bawang putih Garlic	-	-	-	-	-
Cendawan Mushroom	7,619.6	10,801.7	10,997.2	12,787.9	8,445.3
Halia Ginger	11,751.2	8,718.6	10,623.3	10,784.7	11,256.4
Limau nipis/kasturi Lime	17,734.7	18,289.1	19,005.3	17,646.3	22,639.6
Tebu Sugarcane	23,519.4	25,591.1	25,032.4	20,364.2	17,954.6
Ubi kayu Cassava	37,513.7	39,386.9	42,527.9	45,266.1	41,341.2
Ubi keledak Sweet potato	54,750.4	53,613.8	44,686.7	32,983.8	50,583.3

Nota: Berdasarkan penerbitan Akaun Pembekalan dan Penggunaan Komoditi Pertanian Terpilih, Malaysia, 2020-2024

Note: Based on Supply and Utilization Accounts Selected Agricultural Commodities, Malaysia, 2020-2024 publication

Jadual 2.37: Import tanaman lain terpilih, Malaysia, 2020-2024

Table 2.37: Imports for other selected crops, Malaysia, 2020-2024

					Tan metrik Metric tonnes
Jenis Type	2020	2021	2022	2023	2024
Bawang besar Onion	435,972.2	445,069.2	485,127.1	524,788.2	505,129.2
Bawang kecil Shallot	40,601.7	39,543.8	38,567.6	39,824.2	83,076.8
Bawang putih Garlic	112,687.5	137,573.2	161,730.0	196,126.0	226,116.8
Cendawan Mushroom	12,494.3	17,512.5	17,876.4	20,074.0	21,154.1
Halia Ginger	50,586.8	51,737.3	57,136.6	55,354.8	62,922.3
Limau nipis/kasturi Lime	3,279.2	6,193.9	9,453.1	12,797.4	13,208.7
Tebu Sugarcane	153.4	81.5	117.1	306.6	109.2
Ubi kayu Cassava	1,110.1	811.5	847.4	887.8	6,148.9
Ubi keledak Sweet potato	19,017.9	17,291.1	19,236.8	21,833.5	24,720.9

Nota: Berdasarkan penerbitan Akaun Pembekalan dan Penggunaan Komoditi Pertanian Terpilih, Malaysia, 2020-2024

Note: Based on Supply and Utilization Accounts Selected Agricultural Commodities, Malaysia, 2020-2024

Jadual 2.38: Eksport tanaman lain terpilih, Malaysia, 2020-2024

Table 2.38: Exports for other selected crops, Malaysia, 2020-2024

					Tan metrik Metric tonnes
Jenis Type	2020	2021	2022	2023	2024
Bawang besar Onion	-	-	-	-	-
Bawang kecil Shallot	-	-	-	-	-
Bawang putih Garlic	-	-	-	-	-
Cendawan Mushroom	4,251.0	6,758.1	6,131.3	5,628.8	5,921.9
Halia Ginger	305.9	656.8	1,028.4	2,275.3	1,771.1
Limau nipis/kasturi Lime	1,537.7	2,288.9	1,866.1	1,927.0	2,278.5
Tebu Sugarcane	8,760.1	8,543.5	7,835.9	8,098.4	8,071.3
Ubi kayu Cassava	517.8	880.9	1,039.8	1,176.6	750.8
Ubi keledak Sweet potato	1,391.4	2,273.7	3,126.5	1,925.4	1,290.3

Nota: Berdasarkan penerbitan Akaun Pembekalan dan Penggunaan Komoditi Pertanian Terpilih, Malaysia, 2018-2022

Note: Based on Supply and Utilization Accounts Selected Agricultural Commodities, Malaysia, 2018-2022 publication

Jadual 2.39: Bilangan ternakan mengikut jenis, Malaysia, 2020-2024

Table 2.39: Number of livestock by type, Malaysia, 2020-2024

							Bilangan Number
Tahun Year	Jenis ternakan Type of livestock						
	Kerbau Buffalo	Lembu Cattle	Kambing Goat	Bebiri Sheep	Babi Swine	Ayam Chicken	Itik Duck
2020	64,250	699,424	324,355	124,674	1,869,772	293,495,861	9,511,085
2021	66,550	717,431	320,954	136,769	1,673,286	285,352,437	9,522,981
2022	70,374	728,107	335,137	138,520	1,502,947	299,423,193	9,392,021
2023	72,565	726,206	338,260	141,029	1,240,224	316,185,430	9,324,234
2024 ^e	70,521	730,318	344,210	139,393	1,234,164	326,057,949	9,495,837

Sumber: Jabatan Perkhidmatan Veterinar

Source: Department of Veterinary Services

Jadual 2.40: Bilangan ternakan mengikut negeri, Malaysia, 2020-2024

Table 2.40: Number of livestock by state, Malaysia, 2020-2024

Bilangan
Number

Negeri State	Tahun Year	Jenis ternakan Type of livestock						
		Kerbau	Lembu	Kambing	Bebiri	Babi	Ayam	Itik
		Buffalo	Cattle	Goat	Sheep	Swine	Chicken	Duck
Malaysia	2020	64,250	699,424	324,355	124,674	1,869,772	293,495,861	9,511,085
	2021	66,550	717,431	320,954	136,769	1,673,286	285,352,437	9,522,981
	2022	70,374	728,107	335,137	138,520	1,502,947	299,423,193	9,392,021
	2023	72,565	726,206	338,260	141,029	1,240,224	316,185,430	9,324,234
	2024	70,521	730,318	344,210	139,393	1,234,164	326,057,949	9,495,837
Johor	2020	3,544	95,581	33,195	17,576	283,800	62,132,805	1,010,173
	2021	3,936	103,936	35,731	18,135	240,752	51,862,940	1,015,063
	2022	4,503	107,799	38,458	20,251	207,912	54,170,061	1,015,063
	2023	4,512	112,812	41,453	26,356	129,539	53,192,051	1,015,063
	2024	4,588	115,402	42,260	25,993	128,232	55,103,317	1,022,269
Kedah	2020	4,622	52,948	50,085	12,257	2,188	19,686,670	572,000
	2021	4,500	53,011	50,846	13,878	1,484	21,838,000	572,000
	2022	4,251	50,576	55,203	10,878	2,188	23,883,212	529,500
	2023	3,865	49,191	53,646	15,161	2,188	24,047,983	661,000
	2024	3,653	47,474	54,939	14,666	2,120	24,473,430	674,782
Kelantan	2020	4,292	81,307	35,012	24,977	-	5,048,785	47,367
	2021	4,077	77,254	33,261	23,728	-	5,122,850	52,712
	2022	3,995	75,720	32,596	23,253	-	5,042,000	52,712
	2023	3,795	71,913	30,965	22,090	-	4,663,650	50,867
	2024	3,615	70,210	30,411	21,566	-	4,735,680	49,282
Melaka	2020	2,990	19,137	18,668	6,846	42,662	32,086,967	66,000
	2021	2,559	26,095	10,461	7,871	40,571	30,861,607	66,000
	2022	2,563	25,465	9,619	10,988	-	30,356,503	66,900
	2023	2,546	28,993	9,543	10,873	-	33,286,808	66,650
	2024	2,487	28,949	9,694	10,667	-	34,943,095	71,051
Negeri Sembilan	2020	1,878	36,972	13,109	12,538	521	22,325,652	72,500
	2021	2,535	44,486	16,316	16,506	848	24,011,281	74,095
	2022	2,676	46,002	16,412	17,232	930	26,357,334	73,160
	2023	2,667	46,111	15,629	16,703	380	29,727,918	75,040
	2024	2,484	45,799	15,416	16,100	282	30,783,282	74,495
Pahang	2020	11,586	154,147	35,366	17,405	3,472	14,405,801	28,270
	2021	14,018	150,454	40,649	20,996	3,472	14,016,721	13,145
	2022	14,115	149,062	39,696	18,319	-	14,101,294	9,319
	2023	14,530	138,699	41,416	11,858	-	16,327,463	10,180
	2024	14,175	140,765	42,173	11,951	-	17,114,789	10,220
Perak	2020	6,764	56,492	15,119	2,314	562,288	40,844,500	6,972,200
	2021	7,739	55,708	18,569	3,204	555,705	42,031,500	7,063,200
	2022	7,324	64,945	18,392	3,346	508,786	41,894,500	7,063,200
	2023	7,953	70,442	20,741	4,860	412,072	41,097,500	6,863,200
	2024	7,726	71,536	20,196	4,627	415,989	42,866,242	7,008,905
Perlis	2020	42	3,812	4,366	4,316	-	541,945	4,649
	2021	42	3,904	4,407	4,555	-	844,573	10,319
	2022	54	5,973	7,889	6,406	-	867,301	10,319
	2023	60	7,043	8,290	6,459	-	523,860	6,890
	2024	60	6,825	8,194	6,401	-	530,609	6,932

Jadual 2.40: Bilangan ternakan mengikut negeri, Malaysia, 2020-2024 (samb.)

Table 2.40: Number of livestock by state, Malaysia, 2020-2024 (cont'd)

Bilangan
Number

Negeri State	Tahun Year	Jenis ternakan Type of livestock						
		Kerbau	Lembu	Kambing	Bebiri	Babi	Ayam	Itik
		Buffalo	Cattle	Goat	Sheep	Swine	Chicken	Duck
Pulau Pinang	2020	1,050	11,308	9,000	4,200	341,895	14,195,730	376,850
	2021	1,036	12,172	10,190	4,434	309,022	13,197,995	379,285
	2022	867	11,948	10,953	4,322	267,348	15,574,537	369,345
	2023	656	11,661	11,587	4,812	187,956	16,213,609	362,100
	2024	703	11,706	12,153	5,023	189,688	16,633,268	371,129
Selangor	2020	3,276	35,142	27,837	11,878	213,446	21,786,436	17,841
	2021	2,799	38,895	30,253	12,088	227,840	24,355,658	8,878
	2022	2,798	34,895	31,228	10,207	265,739	22,687,114	9,435
	2023	3,194	33,875	27,479	10,745	260,930	28,249,142	7,079
	2024	3,377	34,812	29,233	11,416	254,425	29,414,462	6,988
Terengganu	2020	5,139	85,416	33,427	6,754	-	3,962,423	25,196
	2021	6,378	85,163	33,874	7,579	n.a.	3,412,398	20,480
	2022	7,075	95,419	37,531	9,293	n.a.	3,556,825	15,881
	2023	6,947	95,780	38,784	6,625	-	4,345,248	19,110
	2024	6,727	96,265	40,596	6,678	-	4,336,629	18,601
Sabah	2020	12,000	50,137	35,000	1,334	92,500	6,600,000	50,500
	2021	10,139	52,928	24,681	1,334	89,469	6,640,295	40,588
	2022	12,855	47,380	28,252	1,931	86,510	9,643,735	53,981
	2023	13,271	48,801	29,099	1,988	89,105	9,095,891	55,600
	2024	12,506	49,394	29,229	1,968	88,682	9,294,445	54,265
Sarawak	2020	7,067	17,018	14,171	2,279	327,000	49,878,147	267,539
	2021	7,152	13,421	11,632	2,454	204,123	47,156,619	207,216
	2022	7,298	12,923	8,858	2,094	163,534	51,288,777	123,206
	2023	8,569	10,885	9,482	2,499	158,054	55,414,307	131,455
	2024	8,420	11,181	9,570	2,337	154,746	55,828,701	126,918
Wilayah	2020	-	7	-	-	-	-	-
Persekutuan	2021	-	4	81	7	n.a.	-	-
	2022	-	-	50	-	n.a.	-	-
	2023	-	-	146	-	-	-	-
	2024	-	-	146	-	-	-	-

Sumber: Jabatan Perkhidmatan Veterinar

Source: Department of Veterinary Services

Jadual 2.41: Sembelihan ternakan yang direkod, Malaysia, 2019-2023

Table 2.41: Recorded slaughter of livestock, Malaysia, 2019-2023

Bilangan
Number

Jenis ternakan Type of livestock		2019	2020	2021	2022	2023
Kerbau Buffalo	Jumlah Total	6,233	7,087	7,813	6,894	6,684
	Sem. Malaysia Pen. Malaysia	5,200	6,844	7,484	6,544	5,925
	Sabah	503	96	189	169	621
	Sarawak	530	145	140	181	138
Lembu Cattle	Jumlah Total	87,179	117,601	117,852	118,419	117,082
	Sem. Malaysia Pen. Malaysia	82,567	114,674	115,583	115,539	113,272
	Sabah	1,232	3,700	1,039	1,093	2,079
	Sarawak	3,080	1,852	1,230	1,787	1,731
Kambing Goat	Jumlah Total	53,433	19,912	17,430	24,605	28,473
	Sem. Malaysia Pen. Malaysia	51,453	16,868	17,113	24,391	28,228
	Sabah	1,281	744	75	92	124
	Sarawak	700	300	242	116	121
Bebiri Sheep	Jumlah Total	16,317	8,856	10,647	8,206	7,321
	Sem. Malaysia Pen. Malaysia	16,217	8,823	10,647	8,206	7,321
	Sabah	-	-	-	-	-
	Sarawak	100	33	20	-	-
Babi Swine	Jumlah Total	2,012,398	1,904,152	1,958,938	1,796,741	1,332,086
	Sem. Malaysia Pen. Malaysia	1,573,468	1,546,442	1,527,251	1,474,100	1,070,309
	Sabah	122,631	114,003	110,687	97,641	64,735
	Sarawak	316,299	243,707	321,000	225,000	197,042

Sumber: Jabatan Perkhidmatan Veterinar
Source: Department of Veterinary Services

Jadual 2.42: Pengeluaran ternakan terpilih, Malaysia, 2020-2024

Table 2.42: Production of selected livestock, Malaysia, 2020-2024

					Tan metrik Metric tonnes
Jenis Type	2020	2021	2022	2023	2024
Daging ayam Chicken meat	1,628,609.3	1,583,219.5	1,543,425.3	1,564,406.2	1,830,579.8
Daging babi Pork	220,586.4	197,371.6	181,853.2	147,419.3	136,506.3
Daging itik Duck meat	74,160.9	69,762.2	68,015.8	67,335.1	66,399.8
Daging kambing/ berbiri Mutton	3,916.8	3,502.5	4,095.6	4,368.4	4,269.4
Daging lembu/ kerbau Beef	41,378.8	36,800.6	35,934.1	38,667.2	42,426.3
Susu segar Fresh milk	41,778.0	38,729.0	38,951.0	40,111.9	42,468.6
Telur ayam/ itik ¹ Chicken/ duck egg	795,461.4	839,700.0	869,392.1	1,005,861.5	953,643.5

Jadual 2.43: Import ternakan terpilih, Malaysia, 2020-2024

Table 2.43: Imports for selected livestock, Malaysia, 2020-2024

					Tan metrik Metric tonnes
Jenis Type	2020	2021	2022	2023	2024
Daging ayam Chicken meat	68,243.9	96,593.1	176,213.9	237,421.0	217,173.8
Daging babi Pork	13,439.3	14,939.4	33,516.8	64,771.9	65,218.4
Daging itik Duck meat	0.1	10.1	109.2	82.4	25.5
Daging kambing/ berbiri Mutton	37,785.9	29,277.3	43,206.0	36,852.8	46,208.4
Daging lembu/ kerbau Beef	153,290.6	159,188.9	208,867.5	205,246.9	210,393.9
Susu segar Fresh milk	35,607.5	42,995.0	43,194.8	33,980.0	36,868.8
Telur ayam/ itik ¹ Chicken/ duck egg	25.9	-	102.2	239.1	27.5

Nota: Berdasarkan penerbitan Akaun Pembekalan dan Penggunaan Komoditi Pertanian Terpilih, Malaysia, 2020-2024

Note: Based on Supply and Utilization Accounts Selected Agricultural Commodities, Malaysia, 2020-2024 publication

¹Kadar tukaran telur ayam/ itik - 1 unit = 60 gram
Conversion rate of chicken/ duck egg - 1 piece = 60 grams

***Data 2020 hingga 2024 adalah berdasarkan 36.5 peratus penduduk bukan Islam yang diperoleh daripada Banci Penduduk dan Perumahan Malaysia 2020**
Data for 2020 to 2024 are based on 36.5 per cent of non-Muslims population that obtained from Population and Housing Census of Malaysia 2020

Jadual 2.44: Eksport ternakan terpilih, Malaysia, 2020-2024

Table 2.44: Exports for selected livestock, Malaysia, 2020-2024

					Tan metrik Metric tonnes
Jenis Type	2020	2021	2022	2023	2024
Daging ayam Chicken meat	95,107.3	94,744.9	64,751.9	67,510.4	76,714.7
Daging babi Pork	1,589.5	1,054.4	470.3	501.7	326.4
Daging itik Duck meat	14,929.6	16,360.5	16,163.9	15,986.7	15,300.8
Daging kambing/ berbiri Mutton	9.4	28.1	67.3	89.3	313.1
Daging lembu/ kerbau Beef	512.7	1,015.1	926.2	1,107.8	837.8
Susu segar Fresh milk	12,296.8	13,372.8	14,200.3	14,071.9	15,662.7
Telur ayam/ itik ¹ Chicken/ duck egg	98,020.3	105,382.3	71,192.7	61,430.6	62,405.1

Nota: Berdasarkan penerbitan Akaun Pembekalan dan Penggunaan Komoditi Pertanian Terpilih, Malaysia, 2020-2024

Note: Based on Supply and Utilization Accounts Selected Agricultural Commodities, Malaysia, 2020-2024 publication

¹Kadar tukaran telur ayam/ itik - 1 unit = 60 gram
Conversion rate of chicken/ duck egg - 1 piece = 60 grams

***Data 2020 hingga 2024 adalah berdasarkan 36.5 peratus penduduk bukan Islam yang diperoleh daripada Banci Penduduk dan Perumahan Malaysia 2020**
Data for 2020 to 2024 are based on 36.5 per cent of non-Muslims population that obtained from Population and Housing Census of Malaysia 2020

Jadual 2.45: Rekabentuk kapasiti loji rawatan air mengikut negeri, Malaysia, 2020-2024

Table 2.45: Water treatment plants design capacity by state, Malaysia, 2020-2024

Juta liter sehari (JLH)
Million litres per day (MLD)

Negeri State	2020	2021	2022	2023	2024
Malaysia	21,391	21,739	22,224	22,604	22,984
Johor	2,098	2,133	2,133	2,313	2,352
Kedah	1,494	1,457	1,459	1,459	1,459
Kelantan	439	488	537	546 ^f	550
Melaka	651	651	681	736	736
Negeri Sembilan	994	994	1,048	1,050	1,050
Pahang	1,480	1,612	1,615	1,623	1,624
Perak	1,886	1,891	1,951	1,977	1,977
Perlis	211	211	251	251	279
Pulau Pinang	1,599	1,599	1,599	1,609	1,723
Sabah	1,487	1,505	1,511	1,533	1,630
Sarawak ¹	2,064	2,189	2,275	2,329	2,430
Selangor ²	6,036	6,035	6,035	6,035	6,035
Terengganu	851	873	1,045	1,039	1,035
W.P. Labuan	101	101	104	104	104

Sumber: Kementerian Peralihan Tenaga dan Transformasi Air
Suruhanjaya Perkhidmatan Air Negara

Source: Ministry of Energy Transition and Water Transformation
National Water Services Commission

Nota/ Notes:

¹Termasuk LAKU Management Sdn. Bhd. (Bintulu, Miri & Limbang), Lembaga Air Sibu, Lembaga Air Kuching dan Jabatan Bekalan Air Luar Bandar (JBALB) Sarawak
Includes LAKU Management Sdn. Bhd. (Bintulu, Miri & Limbang), Sibu Water Board, Kuching Water Board and Sarawak Rural Water Supply Department (JBALB)

²Termasuk W.P. Kuala Lumpur dan W.P. Putrajaya
Includes W.P. Kuala Lumpur and W.P. Putrajaya

Peningkatan rekabentuk kapasiti loji rawatan air adalah kerana terdapat penambahan loji baru dan pembesaran rekabentuk loji yang sedia ada. Pengurangan rekabentuk kapasiti loji rawatan air pula disebabkan oleh penutupan loji secara terus dan penutupan sementara loji rawatan air (akan dibuka semula apabila diperlukan)
The increase of water treatment plants design capacity is due to the addition of new plant and expansion of present plant design. The decrease of water treatment plants design capacity is due to the closing of plants and temporary closure of water treatment plant (will be reopened when needed)

Mulai 2016, rekabentuk kapasiti untuk Johor, Perlis dan Terengganu adalah termasuk pengendali swasta di mana kapasiti yang ditetapkan berdasarkan kepada perjanjian kedua-dua belah pihak
Beginning of 2016, design capacity for Johor, Perlis and Terengganu include private operator where the designated capacity based on agreement both parties

Jadual 2.46: Pengeluaran air yang dibekalkan mengikut negeri, Malaysia, 2020-2024

Table 2.46: Production of supplied water by state, Malaysia, 2020-2024

Juta liter sehari (JLH)
Million litres per day (MLD)

Negeri State	2020	2021	2022	2023	2024
Malaysia	17,928	18,190	18,828	19,209	19,534
Johor	1,831	1,848	1,837	1,867	2,001
Kedah	1,487	1,538	1,597	1,602	1,600
Kelantan	507	504	517	522	526
Melaka	578	603	649	692	698
Negeri Sembilan	795	811	848	874	880
Pahang	1,269	1,281	1,337	1,333	1,314
Perak	1,392	1,386	1,418	1,416	1,470
Perlis	243	236	243	262	251
Pulau Pinang	1,108	1,126	1,178	1,198	1,208
Sabah	1,319	1,365	1,404	1,407	1,436
Sarawak ¹	1,693	1,767	1,881	1,956	1,973
Selangor ²	4,967	4,985	5,116	5,226	5,308
Terengganu	657	656	720	773	787
W.P. Labuan	82	84	83	81	82

Sumber: Kementerian Peralihan Tenaga dan Transformasi Air,
Suruhanjaya Perkhidmatan Air Negara

Source: Ministry of Energy Transition and Water Transformation
National Water Services Commission

Nota: ¹Termasuk LAKU Management Sdn. Bhd. (Bintulu, Miri & Limbang), Lembaga Air Sibul, Lembaga Air Kuching dan Jabatan Bekalan Air Luar Bandar (JBALB) Sarawak

Notes: Includes LAKU Management Sdn. Bhd. (Bintulu, Miri & Limbang), Sibul Water Board, Kuching Water Board and Sarawak Rural Water Supply Department (JBALB)

²Termasuk W.P. Kuala Lumpur dan W.P. Putrajaya
Includes W.P. Kuala Lumpur and W.P. Putrajaya

Mulai 2016, pengeluaran air untuk Johor, Perlis dan Terengganu adalah termasuk pengendali swasta
Beginning of 2016, production of water for Johor, Perlis and Terengganu include private operator

Jadual 2.47a: Bekalan air mentah diabstrak dari sungai mengikut negeri, Malaysia, 2020-2024

Table 2.47a: Supply of abstracted raw water from rivers by state, Malaysia, 2020-2024

Negeri State	Juta liter sehari (JLH) Million litres per day (MLD)				
	2020	2021	2022	2023	2024
Malaysia	15,653 ^r	15,988 ^r	16,094 ^r	16,356 ^f	16,867
Johor	1,162	1,142	1,145	1,192	1,180
Kedah	1,551	1,643	1,708	1,708	1,720
Kelantan	323	227	322	319	313
Melaka	368	354	378	360	365
Negeri Sembilan	400	412	406	439 ^f	451
Pahang	1,357	1,322	1,512	1,514	1,560
Perak	1,033	1,144	1,186	1,185	1,277
Perlis	188	174	192	199	198
Pulau Pinang	1,297	1,280	1,138	1,192	1,226
Sabah	968	1,335	1,124	1,060	1,109
Sarawak ¹	1,632 ^r	1,727 ^r	1,749 ^r	1,776	1,891
Selangor ²	4,787	4,687	4,681	4,785	4,924
Terengganu	507	461	475	550	575
W.P. Labuan	80	80	78	77	78

Sumber: Kementerian Peralihan Tenaga dan Transformasi Air
Suruhanjaya Perkhidmatan Air Negara
Source: Ministry of Energy Transition and Water Transformation
National Water Services Commission

Nota: ¹Termasuk LAKU Management Sdn. Bhd. (Bintulu, Miri & Limbang), Lembaga Air Sibul, Lembaga Air Kuching dan Jabatan Bekalan Air Luar Bandar (JBALB) Sarawak

Notes: Includes LAKU Management Sdn. Bhd. (Bintulu, Miri & Limbang), Sibul Water Board, Kuching Water Board and Sarawak Rural Water Supply Department (JBALB)

²Termasuk W.P. Kuala Lumpur dan W.P. Putrajaya
Includes W.P. Kuala Lumpur and W.P. Putrajaya

Jadual 2.47b: Bekalan air mentah diabstrak dari empangan mengikut negeri, Malaysia, 2020-2024

Table 2.47b: Supply of abstracted raw water from storage dams by state, Malaysia, 2020-2024

Juta liter sehari (JLH)
Million litres per day (MLD)

Negeri State	2020	2021	2022	2023	2024
Malaysia	3,433	3,011	3,293	3,523 ^f	3,639
Johor	749	729	751	754	842
Kedah	33	6	20	22	25
Melaka	361	325	258	262	262
Negeri Sembilan	433	439	490	482 ^f	480
Pahang	45	37	47	48	44
Perak	333	274	278	276	297
Perlis	72	63	75	85	105
Pulau Pinang	87	107	131	87	114
Sabah	387	130	297	419	371
Sarawak ¹	220	225	231	298	232
Selangor ²	468	442	461	523	600
Terengganu	236	233	245	259	258
W.P. Labuan	9	8	8	8	9

Sumber: Kementerian Peralihan Tenaga dan Transformasi Air
Suruhanjaya Perkhidmatan Air Negara

Source: Ministry of Energy Transition and Water Transformation
National Water Services Commission

Nota: ¹Termasuk LAKU Management Sdn. Bhd. (Bintulu, Miri & Limbang), Lembaga Air Sibu, Lembaga Air Kuching dan Jabatan Bekalan Air Luar Bandar (JBALB) Sarawak

Notes: Includes LAKU Management Sdn. Bhd. (Bintulu, Miri & Limbang), Sibu Water Board, Kuching Water Board and Sarawak Rural Water Supply Department (JBALB)

²Termasuk W.P. Kuala Lumpur dan W.P. Putrajaya
Includes W.P. Kuala Lumpur and W.P. Putrajaya

Tiada bekalan air mentah yang diambil terus dari empangan bagi Kelantan
No direct extraction of raw water from storage dams in Kelantan

Jadual 2.47c: Bekalan air mentah diabstrak dari air bawah tanah mengikut negeri¹, Malaysia, 2020-2024

Table 2.47c: Supply of abstracted raw water from groundwater by state, Malaysia, 2020-2024

Juta liter sehari (JLH)
Million litres per day (MLD)

Negeri State	2020	2021	2022	2023	2024
Malaysia	224	210	323	395	402
Kelantan	193	198	221	234	244
Melaka	-	0.2	82	147	148
Pahang	5	2	2	2	2
Perlis	3	3	2	2	1
Sabah	23 ^r	7	15	8	5.1
Sarawak ²	0.4	0.4	0.4	2.2	2.0
W.P. Labuan	0.0	0.0	0.0	0.0	0.0

Sumber: Kementerian Peralihan Tenaga dan Transformasi Air,
Suruhanjaya Perkhidmatan Air Negara

Source: Ministry of Energy Transition and Water Transformation
National Water Services Commission

Nota: ¹Sumber bekalan air bawah tanah masih belum diterokai di Johor, Kedah, Melaka, Perak, Pulau Pinang dan Selangor. Isipadu air bawah tanah hanya sebagai panduan memandangkan tidak semua loji rawatan dilengkapi dengan meter bagi mengukur kuantiti pengambilan sebenar

Notes: Groundwater resources have yet to be explored in Johor, Kedah, Melaka, Perak, Pulau Pinang and Selangor. Volume of groundwater is only for guidance since not all treatment plants is equipped with metre to quantify the actual intake volume

²Sumber air bawah tanah tidak diterokai di kawasan yang air dibekalkan oleh Jabatan Bekalan Air Luar Bandar (JBALB), Sarawak, Lembaga Air Kuching dan Lembaga Air Sibul. Kos mengepam air bawah tanah adalah tinggi. Air bawah tanah kini disimpan untuk musim kemarau

Groundwater resources not explored in areas water supplied by Sarawak Rural Water Supply Department (JBALB), Kuching Water Board and Sibul Water Board Pumping groundwater is costly. The groundwater resource is presently stored as a reserve for the drought season

Jadual 2.48: Penggunaan air bermeter mengikut sektor dan negeri, Malaysia, 2020-2024

Table 2.48: Metered water consumption by sector and state, Malaysia, 2020-2024

Juta liter sehari (JLH)
Million litres per day (MLD)

Negeri State	Sektor Sector									
	Domestik Domestic					Bukan domestik Non-domestic				
	2020	2021	2022	2023	2024	2020	2021	2022	2023	2024
Malaysia	7,179	7,540	7,353	7,244	7,534	4,298	4,180	4,553	4,985	5,077
Johor	867	879	867	883	901	526	505	536	572	610
Kedah	574	590	560	511	499	193	179	217	278	283
Kelantan	170	171	162	159	164	75	68	77	79	80
Melaka	215	230	228	235	242	189	184	205	214	215
Negeri Sembilan	318	327	307	309	323	222	222	231	226	237
Pahang	367	391	385	385	378	264	259	280	291	293
Perak	706	703	699	600	601	266	266	289	387	398
Perlis	78	80	80	63	64	12	11	18	34	36
Pulau Pinang	533	547	534	503	495	314	313	334	378	375
Sabah	313	425	394	416	667	224	225	238	229	145
Sarawak ¹	548	579	602	624	599	448	440	463	572	586
Selangor ²	2,186	2,294	2,230	2,248	2,288	1,362	1,315	1,459	1,506	1,591
Terengganu	286	302	286	289	294	165	161	173	187	195
W.P. Labuan	17	20	19	19	19	40	32	33	32	32

Sumber: Kementerian Peralihan Tenaga dan Transformasi Air,
Suruhanjaya Perkhidmatan Air Negara

Source: Ministry of Energy Transition and Water Transformation
National Water Services Commission

Nota: ¹Termasuk LAKU Management Sdn. Bhd. (Bintulu, Miri & Limbang), Lembaga Air Sibu, Lembaga Air Kuching dan Jabatan Bekalan Air Luar Bandar (JBALB) Sarawak

Notes: Includes LAKU Management Sdn. Bhd. (Bintulu, Miri & Limbang), Sibu Water Board, Kuching Water Board and Sarawak Rural Water Supply Department (JBALB)

²Termasuk W.P. Kuala Lumpur dan W.P. Putrajaya
Includes W.P. Kuala Lumpur and W.P. Putrajaya

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KOMPONEN 3 ***COMPONENT***

SISA

RESIDUALS



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Jadual 3.1: Pelepasan gas rumah kaca, Malaysia, 2017-2021

Table 3.1: Greenhouse gas emission, Malaysia, 2017-2021

Sektor <i>Sector</i>	Emissions/ Removals (Gg CO ₂ equivalent)				
	2017	2018	2019	2020	2021
Jumlah Pelepasan Net (Termasuk Guna Tanah, Pertukaran Guna Tanah dan Perhutanan) <i>Nett Total Emissions (with LULUCF)</i>	94,235.62	128,262.77	118,073.16	94,201.01	115,388.04
Jumlah Pelepasan (Tidak termasuk Guna Tanah, Pertukaran Guna Tanah dan Perhutanan) <i>Total Emissions (without LULUCF)</i>	314,303.27	318,106.50	327,363.79	331,363.48	327,672.37
Tenaga <i>Energy</i>	255,080.97	257,327.63	261,393.21	263,543.64	259,666.83
Industri Pemprosesan dan Guna Produk <i>Industrial processes and product use</i>	23,897.24	26,390.21	32,544.89	35,272.93	37,028.35
Pertanian <i>Agriculture</i>	8,903.12	8,629.87	7,804.10	7,727.22	7,310.04
LULUCF	-220,067.65	-189,843.73	-209,290.63	-237,162.47	-212,284.33
Sisa <i>Waste</i>	26,421.94	25,758.80	25,621.59	24,819.69	23,667.15

Sumber: Kementerian Sumber Asli dan Kelestarian Alam
Source: Ministry of Natural Resources dan Environmental Sustainability

Nota/ Notes:

Data siri masa telah disemak semula berdasarkan laporan di dalam *Malaysia First Biennial Transparency Report (BTR1)*
The time series data has been revised based on reported in *Malaysia First Biennial Transparency report (BTR1)*
LULUCF : Land Use, Land Use Change and Forestry

Jadual 3.2: Pelepasan bahan pencemar ke udara mengikut jenis dan punca, Malaysia, 2020-2024

Table 3.2: Emission of pollutants to the atmosphere by type and source, Malaysia, 2020-2024

Tan metrik
Metric tonnes

Bahan pencemar <i>Pollutants</i>	Tahun <i>Year</i>	Sumber <i>Source</i>					Jumlah <i>Total</i>
		Punca tetap <i>Stationary sources</i>			Kenderaan bermotor <i>Motor vehicles</i>	Lain-lain ¹ <i>Others</i>	
		Industri <i>Industry</i>	Stesen janakuasa <i>Power plant</i>	Jumlah <i>Total</i>			
Jumlah <i>Total</i>	2020	119,473	855,497	974,970	2,454,361	135,773	3,565,104
	2021	94,622	769,878	864,500	1,792,145	68,433	2,725,078
	2022	94,622	769,878	864,500	2,226,043	68,433	3,158,978
	2023	102,828	879,750	982,578	1,935,623	121,697	3,039,898
	2024	792,282	172,658	964,940	2,696,869	104,899	3,766,708
Habuk Halus ² (PM) <i>Particulate Matter</i>	2020	8,441	11,415	19,856	3,645	5,764	29,265
	2021	7,788	8,581	16,369	2,702	3,578	22,649
	2022	7,788	8,581	16,369	3,768	3,578	23,715
	2023	7,494	9,928	17,422	2,664	5,864	25,950
	2024	7,489	9,891	17,380	11,153	4,774	33,307
Karbon Monoksida (CO) <i>Carbon Monoxide</i>	2019	12,176	76,243	88,419	2,210,695	8,326	2,307,440
	2020	8,547	61,153	69,700	1,613,956	4,204	1,687,860
	2021	8,547	61,153	69,700	1,997,005	4,204	2,070,909
	2023	11,414	77,227	88,641	1,750,407	8,265	1,847,313
	2024	72,164	12,311	84,475	2,271,301	7,569	2,363,345
Nitrogen Dioksida (NO ₂) <i>Nitrogen Dioxide</i>	2019	80,480	584,889	665,369	225,369	45,010	935,748
	2020	58,429	567,611	626,040	164,744	9,393	800,177
	2021	58,429	567,611	626,040	211,431	9,393	846,864
	2023	69,105	613,115	682,220	171,337	28,774	882,331
	2024	77,776	601,309	679,085	388,286	31,621	1,098,992
Sulfur Dioksida (SO ₂) <i>Sulphur Dioxide</i>	2019	18,376	182,950	201,326	14,652	76,673	292,651
	2020	19,858	132,533	152,391	10,743	51,258	214,392
	2021	19,858	132,533	152,391	13,841	51,258	217,490
	2023	14,815	179,480	194,295	11,215	78,794	284,304
	2024	15,229	168,771	184,000	26,129	60,935	271,064

Nota: ¹Termasuk hotel, pusat komersial, institusi, pasar malam
Notes: Include hotels, commercial centres, institutions, night markets and open burning activities

Sumber: Jabatan Alam Sekitar
Source: Department of Environment

²Habuk Halus (PM) termasuk semua jenis habuk halus
Particulate Matter (PM) includes all types of particulate matters

Jadual 3.3: Kemudahan pembetungan, Malaysia, 2021-2024

Table 3.3: Sewerage facilities, Malaysia, 2021-2024

Kemudahan pembetungan Sewerage facilities	2021		2022		2023		2024	
	Kuantiti Quantity	Population equivalent	Kuantiti Quantity	Population equivalent	Kuantiti Quantity	Population equivalent	Kuantiti Quantity	Population equivalent
Loji rawatan kumbahan awam Public sewage treatment plant (a+b)	7,440	29,577,067	7,503	31,417,704	7,645 ^r	31,740,677 ^r	7,794	33,176,257
a. Loji multipoint Multipoint plant	7,336	19,881,838	7,395	20,186,013	7,534	20,508,986	7,738	23,775,266
b. Loji serantau Regional plant	104	9,695,229	108	11,231,691	111 ^r	11,231,691 ^r	56	9,400,991
Loji rawatan kumbahan swasta Private sewage treatment plant	4,464	4,882,300	4,641	4,957,337	4,822	5,022,434	5,043	5,132,866
Communal septic tank	4,229	515,514	3,483 ^r	396,616 ^r	3,465 ^r	393,135 ^r	3,457	389,258
Tangki septik individu Individual septic tank	1,363,886	7,096,562	1,366,516	7,151,742	1,369,842	7,177,741	1,373,619	7,246,032
Sistem tradisional Traditional system	1,156,314	5,781,570	1,152,346	5,761,730	1,140,552	5,702,760	1,135,758	5,678,790
Stesen pemasangan rangkaian Network pumping station	1,407	n.a.	1,454	n.a.	1,495	n.a.	1,542	n.a.
Panjang rangkaian pemetung (km) Length of sewer network	21,633	n.a.	21,964	n.a.	21,978	n.a.	22,905	n.a.

Sumber: Suruhanjaya Perkhidmatan Air Negara
Source: National Water Services Commission

Jadual 3.4: Loji rawatan pembetungan awam, Malaysia, 2022-2024

Table 3.4: Public sewerage treatment plant, Malaysia, 2022-2024

Negeri State	LRP multipoint Multipoint STP ¹			Loji serantau Regional plant ²			Jumlah Total		
	2022	2023	2024	2022	2023	2024	2022	2023	2024
	2022	2023	2024	2022	2023	2024	2022	2023	2024
Jumlah Total	20,186,013	20,508,986	23,775,266	11,231,691	11,231,691 ^r	9,400,991	31,417,704	31,740,677 ^r	33,176,257
Johor	4,055,962	4,184,213	4,830,547	1,074,398	1,074,398 ^r	629,746	5,130,360	5,258,611 ^r	5,460,293
Kedah	1,100,288	1,151,760	1,239,503	80,093	80,093	64,768	1,180,381	1,231,853	1,304,271
Kelantan	86,879	89,723	93,858	-	-	-	86,879	89,723	93,858
Melaka	973,299	996,584	1,040,256	198,927	198,927	219,689	1,172,226	1,195,111	1,259,945
Negeri Sembilan	1,093,373	1,137,956	1,321,672	532,491	532,491	457,821	1,625,864	1,670,447	1,779,493
Pahang	619,294	663,872	769,694	78,071	78,071	-	697,365	741,943	769,694
Perak	2,097,573	2,147,221	2,183,975	77,169	77,169	170,633	2,174,742	2,224,390	2,354,608
Perlis	55,722	56,622	60,745	19,589	19,589	21,924	75,311	76,211	82,669
Pulau Pinang	1,298,047	1,349,371	1,657,966	1,798,435	1,798,435	1,745,034	3,096,482	3,147,806	3,403,000
Selangor	7,583,959	7,507,534	8,912,693	3,859,044	3,859,044	2,611,699	11,443,003	11,366,578	11,524,392
Terengganu	217,437	232,098	238,591	-	-	-	217,437	232,098	238,591
W.P. Kuala Lumpur	969,042	956,587	1,356,915	3,122,317	3,122,317	3,104,130	4,091,359	4,078,904	4,461,045
W.P. Labuan	35,138	35,445	68,851	28,163	28,163	-	63,301	63,608	68,851
W.P. Putrajaya	-	-	-	362,994	362,994	375,547	362,994	362,994	375,547

Sumber: Suruhanjaya Perkhidmatan Air Negara
Source: National Water Services Commission

Nota: ¹LRP multipoint: STP untuk memenuhi pembangunan yang sporadis dan bertaburan oleh pemaju yang berbeza
Notes: Multipoint STP: STPs to cater for sporadic and scattered development by different developers

²Loji serantau: STP yang dikenal pasti dalam Kajian Pengawasan Pembetungan untuk menampung kawasan tadahan pembetungan

Jadual 3.5: Kumbahan yang dihasilkan oleh isi rumah, Malaysia, 2020-2024

Table 3.5: Sewage generated by household, Malaysia, 2020-2024

Indikator Indicators	Tahun Year	2020	2021	2022	2023	2024
Kumbahan yang dihasilkan ¹ Sewage generated (%)		64.6	65.1	72.1	79.8	82.0

Sumber: Suruhanjaya Perkhidmatan Air Negara
Source: National Water Services Commission

Nota: ¹Perkadaran kumbahan yang dihasilkan oleh isi rumah yang dirawat oleh loji rawatan kumbahan awam, Semenanjung Malaysia dan W.P. Labuan
Notes: Proportion of sewage generated by household being treated by public sewage treatment plant, Peninsular Malaysia and W.P. Labuan

Jadual 3.6: Sisa pepejal yang dimasukkan ke fasiliti pengurusan sisa pepejal, Malaysia¹, 2024

Table 3.6: Solid waste entered solid waste management facility, Malaysia, 2024

Tan metrik ('000) Metric tonnes							
Jenis sisa pepejal Type of solidwaste	Sisa domestik (Isi Rumah) Domestic waste (Household)	Sisa institusi, Komersial & Industri (ICI) Institution, Commercial & Industrial Waste (ICI)	Sisa pukal Bulk waste	Sisa pembersihan awam Public cleansing waste	Sisa binaan & Perobohan Construction & Demolition waste	Lain-lain Others	Jumlah Total
Jumlah Total	2,341,801	753,464	365,234	256,571	68,581	10,453	3,796,104
Januari January	166,629	47,211	29,817	17,660	6,061	993	268,370
Februari February	157,441	44,941	27,388	17,793	4,517	670	252,750
Mac March	160,762	46,886	21,350	20,655	3,503	566	253,721
April	201,042	51,104	30,275	20,488	5,871	1,043	309,822
Mei May	208,351	64,107	31,052	22,466	6,288	922	333,186
Jun June	201,332	64,156	29,583	21,434	3,422	612	320,539
Julai July	217,355	71,053	32,322	23,118	6,117	678	350,643
Ogos August	211,542	71,237	33,034	23,491	5,532	684	345,519
September	202,241	70,217	33,008	21,187	6,947	1,621	335,220
Oktober October	207,570	74,276	33,406	23,095	6,165	645	345,157
November	196,962	71,255	30,713	22,072	5,078	598	326,678
Disember December	210,573	77,022	33,287	23,115	9,080	1,421	354,498

Sumber: Kementerian Perumahan dan Kerajaan Tempatan
Source: Ministry of Housing and Local Government

Nota: Sebarang perbezaan pada data yang dilaporkan adalah disebabkan oleh pembundaran.
Notes: Any differences in the aggregated data are due to rounding.

¹Merujuk kepada Negeri yang menggunakan peraturan di bawah Akta Pengurusan Sisa Pepejal dan Pembersihan Awam 2007 (Akta 672) yang berkuatkuasa di Johor, Kedah, Melaka, Negeri Sembilan, Pahang, Perlis, W.P. Kuala Lumpur dan W.P. Putrajaya
Refer to the States adopting regulations under Solid Waste and Public Cleansing Management Act 2007 (Act 672) enforced in Johor, Kedah, Melaka, Negeri Sembilan, Pahang, Perlis, W.P. Kuala Lumpur and W.P. Putrajaya

Jadual 3.7: Komposisi sisa pepejal, Malaysia¹, 2019-2023

Table 3.7: Solid waste composition, Malaysia, 2019-2023

Peratus

Jenis sisa Type of waste	2019	2020	2021	2022	2023
Jumlah <i>Total</i>	100.0	100.0	100.0	100.0	100.0
Sisa makanan <i>Food waste</i>	30.3	34.6	36.0	30.6	35.5
Plastik <i>Plastic</i>	24.8	22.7	23.9	21.9	26.9
Kertas <i>Paper</i>	10.5	8.1	8.8	15.3	10.3
Besi <i>Metal</i>	2.3	3.2	2.4	2.4	1.7
Sisa berbahaya isirumah <i>Household hazardous waste (HHW)</i>	1.1	0.7	0.7	4.2	1.2
Tetrapak	0.8	0.9	1.3	1.7	1.1
Kaca <i>Gelas</i>	1.5	1.7	2.0	2.7	1.8
Kain <i>Textiles</i>	4.8	3.6	3.5	2.3	3.1
Getah/ kulit <i>Rubber/ leather</i>	1.6	1.1	1.3	1.1	1.8
Kayu <i>Wood</i>	2.7	1.0	1.2	1.0	1.0
Sisa kebun/ taman <i>Garden waste</i>	4.1	4.5	3.6	2.9	3.4
Lampin/ napkin <i>Diapers/ napkin</i>	11.1	12.8	11.3	8.2	8.9
Sisa campuran <i>Comingle</i>	4.1	3.9	0.4	0.7	2.3
Pelutup muka <i>Face mask</i>	-	-	1.0	1.4	0.7
Lain-lain <i>Others</i>	0.5	1.3	2.6	3.6	0.4

Sumber: Kementerian Perumahan dan Kerajaan Tempatan
Source: Ministry of Housing and Local Government

Nota: Sebarang perbezaan pada data yang dilaporkan adalah disebabkan oleh pembundaran.
Notes: Any differences in the aggregated data are due to rounding.

¹ Merujuk kepada Negeri yang menggunakan peraturan di bawah Akta Pengurusan Sisa Pepejal dan Pembersihan Awam 2007 (Akta 672) yang berkuatkuasa di Johor, Kedah, Melaka, Negeri Sembilan, Pahang, Perlis, W.P. Kuala Lumpur dan W.P. Putrajaya
Refer to the States adopting regulations under Solid Waste and Public Cleansing Management Act 2007 (Act 672) enforced in Johor, Kedah, Melaka, Negeri Sembilan, Pahang, Perlis, W.P. Kuala Lumpur and W.P. Putrajaya

Data kajian adalah daripada kajian yang menggunakan 200kg sampel di tapak pelupusan dengan kaedah pensampelan secara pelupusan
This data is from a study that used 200kg of samples at a landfill site with a disposal sampling method

Jadual 3.8: Kadar kitar semula, Malaysia, 2020-2024

Table 3.8: Recycling rates, Malaysia, 2020-2024

Indikator Indicators	Tahun Year	2020	2021	2022	2023	2024
Kadar kitar semula ¹ Recycling rate (%)		30.67	31.52	33.17	35.38	37.90

Sumber: Kementerian Perumahan dan Kerajaan Tempatan
Source: Ministry of Housing and Local Government

Nota: ¹ Merujuk kepada *Survey on Solid Waste Composition, Characteristics and Existing Practice of Solid Waste Recycling in Malaysia, 2013*

Notes: Refer to *Survey on Solid Waste Composition, Characteristics and Existing Practice of Solid Waste Recycling in Malaysia, 2013*

Jadual 3.9: Senarai dan kapasiti kemudahan rawatan dan pelupusan sisa perbandaran mengikut negeri, Malaysia, 2024

Table 3.9: List and capacity of municipal waste treatment and disposal facilities by state, Malaysia, 2024

Negeri State	Tapak pelupusan Disposal site			Loji rawatan termal Thermal treatment plant		
	Nama tapak Site name	Kapasiti muatan sisa sehari (tan/ hari) Residual load capacity daily (tonnes/day)	Luas (Hektar) Area (Hectares)	Nama loji Plant name	Kapasiti muatan sisa sehari (tan/ hari) Residual load capacity daily (tonnes/day)	Luas (Hektar) Area (Hectares)
Johor	TPS Seelong	2,101.9	108.0	-	-	-
	TP Buluh Kasap	438.6	31.6	-	-	-
	TP Maokil, Labis	428.4	12.0	-	-	-
	TP Jemaluang	50.9	4.3	-	-	-
	TP Batu 4	696.4	14.6	-	-	-
	TP Tanjung Langsat	429.5	10.5	-	-	-
	TP Bandar Penawar	5.8	11.5	-	-	-
Kedah	TP Jabi	596.4	50.0	LRT Pulau Langkawi	6.1	2.5
	TPS Padang Cina	970.8	56.7	-	-	-
	TPS Belanga Pechah	122.5	29.0	-	-	-
Negeri Sembilan	TPS Ladang Tanah Merah	345.3	120.0	WtE Ladang Tanah Merah	578.2	120.0
	TP Sg. Muntoh	170.7	8.1	-	-	-
	TP Ulu Maasop	20.7	5.0	-	-	-
Perlis	TPS Rimba Mas	177.0	30.0	-	-	-
Melaka	TPS Sg. Udang	1,094.3	64.0	-	-	-
Pulau Pinang	TPS Pulau Burung	2,000.0	62.4	-	-	-
	TPi Jeti Jelutong	n/a	28.3	-	-	-

Jadual 3.9: Senarai dan kapasiti kemudahan rawatan dan pelupusan sisa perbandaran mengikut negeri, Malaysia, 2024 (samb.)

Table 3.9: List and capacity of municipal waste treatment and disposal facilities by state, Malaysia, 2024 (cont'd)

Negeri State	Tapak pelupusan Disposal site			Loji rawatan termal Thermal treatment plant		
	Nama tapak Site name	Kapasiti muatan sisa sehari (tan/ hari) Residual load capacity daily (tonnes/day)	Luas (Hektar) Area (Hectares)	Nama loji Plant name	Kapasiti muatan sisa sehari (tan/ hari) Residual load capacity daily (tonnes/day)	Luas (Hektar) Area (Hectares)
Pahang	TPS Belonggu	160.5	40.0	LRT Cameron Highland	39.0	2.5
	TPS Pdg. Sertik	170.2	40.5	LRT Pulau Tioman	4.0	2.5
	TPS Blue Valley	52.1	5.6	-	-	-
	TPS Jalan Lipis	39.4	10.2	-	-	-
	TP Jabor - Jerangau	553.7	60.0	-	-	-
	TP Jengka 10	107.1	16.2	-	-	-
	TP Keledang	57.6	23.6	-	-	-
	TP. Kg. Chuat	56.9	26.0	-	-	-
	TP Muadzam Shah	42.6	4.9	-	-	-
	TP Kg. Feri	24.2	6.1	-	-	-
	Tpi Sungai Karang*	1.1	3.6	-	-	-
Selangor & W.P. Kuala Lumpur	TPS Bukit Tagar	3,000.0	700.0	-	-	-
	TPS Jeram	3,000.0	64.7	-	-	-
	TPS Tanjung Dua Belas	2,500.0	64.7	-	-	-
	TP Panchang Bedena	20.0	8.0	-	-	-
	TP Sg. Sabai, Kalumpang	200.0	8.1	-	-	-
	TPi Sg. Kertas	672.0	5.7	-	-	-
	TPi Kuang	273.0	11.0	-	-	-
	Tpi Dengkil	374.0	59.0	-	-	-
Terengganu	TPS Kg. Tertak Batu	100.0	25.2	-	-	-
	TP Paya Rawa	80.0	13.3	-	-	-
	TP Kg. Air Sejuk	36.0	3.7	-	-	-
	TP Sg. Ikan	250.0	37.8	-	-	-
	TP Jln. Kuala Berang	30.0	3.9	-	-	-
	TP Bkt Takal Mak Cili Paya	120.0	15.0	-	-	-
	TP Bukit Lat	70.0	28.3	-	-	-
	TP Bukit Ayak	30.0	9.0	-	-	-
	TP Gelugor	80.0	8.0	-	-	-

Jadual 3.9: Senarai dan kapasiti kemudahan rawatan dan pelupusan sisa perbandaran mengikut negeri, Malaysia, 2024 (samb.)

Table 3.9: List and capacity of municipal waste treatment and disposal facilities by state, Malaysia, 2024 (cont'd)

Negeri State	Tapak pelupusan Disposal site			Loji rawatan termal Thermal treatment plant		
	Nama tapak Site name	Kapasiti muatan sisa sehari (tan/ hari) Residual load capacity daily (tonnes/day)	Luas (Hektar) Area (Hectares)	Nama loji Plant name	Kapasiti muatan sisa sehari (tan/ hari) Residual load capacity daily (tonnes/day)	Luas (Hektar) Area (Hectares)
Kelantan	TP Kg. Kok Bedollah	130.0	20.2	-	-	-
	TP Pusu 40	120.0	4.5	-	-	-
	TP Beris Lalang	306.0	30.5	-	-	-
	TP Air Belaga	120.0	10.0	-	-	-
	TP Bkt. Che Ros	70.0	5.0	-	-	-
	TP Kg. Sg. Mekong	15.0	0.8	-	-	-
	TP Bkt. Akil	27.0	4.0	-	-	-
	TP Jalan Dabong - Sungai Sam	10.0	3.7	-	-	-
	TP Bukit Tembeling	19.0	4.5	-	-	-
	TP Gua Musang	72.0	32.0	-	-	-
Perak	TPS Lahat	650.0	226.7	Insenerator Pulau Pangkor	15.0	2.0
	TP Jalan Gerik	28.0	8.1	-	-	-
	TP Jln. Air Ganda Gerik	15.0	18.0	-	-	-
	TP Ayer Kala	25.0	1.5	-	-	-
	TP Jln. Tmn Merdeka	90.0	4.0	-	-	-
	TP Bagan Serai	120.0	2.4	-	-	-
	TP Jebong	250.0	9.3	-	-	-
	TP Jln. Kuala Kangsar	180.0	13.4	-	-	-
	TP Parit	80.0	1.5	-	-	-
	TP Teluk Mengkudu	330.0	47.0	-	-	-
	TP Sg. Siput Selatan	80.0	26.7	-	-	-
	TP Batu Gajah	60.0	24.3	-	-	-
	TP Bidor, Pekan Pasir	100.0	56.7	-	-	-
	TP Changkat Jong	200.0	9.0	-	-	-
	TP Penderas	70.0	8.0	-	-	-
	TP Teluk Cempedak	15.0	3.4	-	-	-

Jadual 3.9: Senarai dan kapasiti kemudahan rawatan dan pelupusan sisa perbandaran mengikut negeri, Malaysia, 2024 (samb.)

Table 3.9: List and capacity of municipal waste treatment and disposal facilities by state, Malaysia, 2024 (cont'd)

Negeri State	Tapak pelupusan Disposal site			Loji rawatan termal Thermal treatment plant		
	Nama tapak Site name	Kapasiti muatan sisa sehari (tan/ hari) Residual load capacity daily (tonnes/day)	Luas (Hektar) Area (Hectares)	Nama loji Plant name	Kapasiti muatan sisa sehari (tan/ hari) Residual load capacity daily (tonnes/day)	Luas (Hektar) Area (Hectares)
Sarawak	TP Bau	60.0	3.6	-	-	-
	TP Lidong	30.0	1.0	-	-	-
	TP Pusa	6.0	0.3	-	-	-
	TP Spaoh	6.0	0.3	-	-	-
	TP Debak	6.0	0.4	-	-	-
	TP Meludam	48.0	n/a	-	-	-
	TP Dalat	35.0	0.6	-	-	-
	TP Balingian	25.0	1.0	-	-	-
	TP Perawan	11.0	1.4	-	-	-
	TP Kapit	50.0	2.5	-	-	-
	TP Song	20.0	1.5	-	-	-
	TP Belaga	15.0	1.5	-	-	-
	TP Sg. Asap	15.0	2.5	-	-	-
	TPS Mambong	450.0	112.0	-	-	-
	TP Lawas	20.0	6.1	-	-	-
	TP Kidurong	150.0	4.1	-	-	-
	TP Ulu Segan	335.0	8.0	-	-	-
	TP Limbang	50.0	4.5	-	-	-
	TP Selangau	6.0	2.0	-	-	-
	TP Stapang	4.0	3.7	-	-	-
	TP Lubok Antu	5.0	0.8	-	-	-
	TP Engkilili	5.0	1.2	-	-	-
	TP Lundu	16.0	3.7	-	-	-
	TP Julau	8.0	2.0	-	-	-
	TP Pakan	8.0	2.0	-	-	-
	TP Meradong	16.0	1.0	-	-	-
	TP Gemuan	n/a	n/a	-	-	-
	TP Marudi	25.0	1.5	-	-	-
	TP Long Lama	5.0	2.7	-	-	-
	TP Daro	6.0	1.0	-	-	-
	TP Kuala Matu	5.0	0.8	-	-	-
	TP Belawai	5.0	4.0	-	-	-
	TPS Sibuti	136.0	4.6	-	-	-
	TP Kuala Baram	40.0	7.5	-	-	-
	TP Samarahan	120.0	2.3	-	-	-
	TPS Seratok	12.0	0.3	-	-	-
	TP Roban	5.0	0.8	-	-	-
	TP Selalang	56.0	4.5	-	-	-
	TP Batu 8	9.6	0.8	-	-	-
	TP Tebedu	2.4	0.1	-	-	-
	TPS Kemunyang	121.0	5.5	-	-	-

Jadual 3.9: Senarai dan kapasiti kemudahan rawatan dan pelupusan sisa perbandaran mengikut negeri, Malaysia, 2024 (samb.)

Table 3.9: List and capacity of municipal waste treatment and disposal facilities by state, Malaysia, 2024 (cont'd)

Negeri State	Tapak pelupusan Disposal site			Loji rawatan termal Thermal treatment plant		
	Nama tapak Site name	Kapasiti muatan sisa sehari (tan/ hari) Residual load capacity daily (tonnes/day)	Luas (Hektar) Area (Hectares)	Nama loji Plant name	Kapasiti muatan sisa sehari (tan/ hari) Residual load capacity daily (tonnes/day)	Luas (Hektar) Area (Hectares)
Sarawak	TP Jln. Seng Ling	100.0	25.0	-	-	-
	TP Simunjan	30.0	2.1	-	-	-
	TP Pantu	4.0	0.6	-	-	-
	TP Entulang	75.0	1.2	-	-	-
	TP Lingga	4.0	1.4	-	-	-
Sabah	TP Lumat	35.0	4.1	-	-	-
	TP Kg Kolapis	10.0	6.1	-	-	-
	TP Telupid	15.0	6.0	-	-	-
	TP Jln. Sedukut	40.0	30.0	-	-	-
	TP Jln. Sinar Jaya	10.0	6.1	-	-	-
	TPS Kayu Madang	400.0	46.5	-	-	-
	TP Kota Marudu	1.6	n/a	-	-	-
	TP Menumpang	10.0	10.0	-	-	-
	TP Menumbok	6.0	1.0	-	-	-
	TP Kunak	6.0	5.0	-	-	-
	TP Lahad Datu	213.0	20.2	-	-	-
	TP LBK	110.0	2.0	-	-	-
	TP Kg. Langkawit	20.0	4.1	-	-	-
	TP Ranau	40.0	6.1	-	-	-
	TP Labuk	220.0	101.1	-	-	-
	TP Kg. Simunul	20.0	0.8	-	-	-
	TP Sipitang	20.0	0.8	-	-	-
	TP Jln. Mosogit	8.0	4.1	-	-	-
	TP Mengkadait	25.0	4.1	-	-	-
	TP Bukit Gemok	177.0	3.3	-	-	-
	TP Kg. Amboi	25.0	4.1	-	-	-
	TP Tamu	n/a	n/a	-	-	-
W.P. Labuan	TPS Bukit Kalam	90.0	30.0	-	-	-

Nota/ Notes:

TP: Tapak pelupusan bukan sanitari/ Non-sanitary landfill

TPS: Tapak pelupusan sanitari/ Sanitary landfill

TPI: Tapak pelupusan lengai/ Inert landfill

LRT: Loji Rawatan Termal/ Thermal treatment plant (Incinerator)

WtE: Loji Waste to Energy/ Waste to Energy Plant

Sumber: Kementerian Perumahan dan Kerajaan Tempatan

Source: Ministry of Housing and Local Government

**Jadual 3.10: Sisa perbandaran yang dihantar ke kemudahan pengurusan sisa pepejal mengikut negeri¹,
Malaysia, 2024**

Table 3.10: Municipal waste sent to solid waste management facilities by state, Malaysia, 2024

Negeri State	Nama Kemudahan/ Tapak Pelupusan Facility Name/ Disposal Site	Purata sisa yang diterima (tan/ hari) Average residue received (tonnes/ day)
Johor	TP Buluh Kasap	438.6
	TP Maokil, Labis	428.4
	TP Jemaluang	50.9
	TP Batu 4	696.4
	TP Pekan Nenas	1,554.80
Kedah	TP Jabi	596.5
	TPS Padang Cina	970.9
	TPS Belanga Pechah	122.5
	LRT Langkawi	6.1
Melaka	TPS Sg. Udang	1,094.30
Negeri Sembilan	TPS Ladang Tanah Merah	923.5
	TP Sg. Muntoh	20.7
	TP Ulu Maasop	170.8
Pahang	TPS Belenggu	160.5
	TPS Pdg. Sertik	170.2
	TPS Blue Valley	52.1
	TPS Jalan Lipis	39.4
	TP Jengka 10	107.1
	TP Keledang	57.6
	TP. Kg. Chuat	57.7
	TP Bukit Ibam Muadzam Shah	42.6
	TP Kg. Feri	24.1
	LRT Cameron Highland	39.4
	LRT Pulau Tioman	3.3
Perlis	TPS Rimba Mas	177
W.P. Kuala Lumpur	SP Taman Beringin	2,382.8
Perak ²	LRT Pulau Pangkor	12.1

Sumber: Kementerian Perumahan dan Kerajaan Tempatan
Source: Ministry of Housing and Local Government

Nota/ Notes:

Sebarang perbezaan pada data yang dilaporkan adalah disebabkan oleh pembundaran.
Any differences in the aggregated data are due to rounding.

¹ Merujuk kepada negeri yang mengguna pakai peraturan di bawah Akta Pengurusan Sisa Pepejal dan Pembersihan Awam 2007 (Akta 672) yang berkuatkuasa di Johor, Kedah, Melaka, Negeri Sembilan, Pahang, Perlis, W.P. Kuala Lumpur dan W.P. Putrajaya
Refer to the States adopting regulations under Solid Waste and Public Cleansing Management Act 2007 (Act 672) enforced in Johor, Kedah, Melaka, Negeri Sembilan, Pahang, Perlis, W.P. Kuala Lumpur and W.P. Putrajaya

² Termasuk sisa yang dirawat di WtE Ladang Tanah Merah
Includes waste treated in WtE Ladang Tanah Merah

³ Perak tidak mengguna pakai peraturan di bawah Akta Pengurusan Sisa Pepejal dan Pembersihan Awam 2007 (Akta 672), walau bagaimanapun LRT Pulau Pangkor dibawah seliaan Perbadanan Pengurusan Sisa Pepejal dan Pembersihan Awam (SWCorp)
Perak does not adopting the Solid Waste Management and Public Cleansing Act 2007 (Act 672), however the LRT Pulau Pangkor is under the supervision of the Solid Waste Management and Public Cleansing Corporation (SWCorp)

TP: Tapak pelupusan bukan sanitari/ Non-sanitary landfill
TPS: Tapak pelupusan sanitari/ Sanitary landfill
LRT: Loji Rawatan Termal/ Thermal treatment plant (Incinerator)
SP: Stesen Pemindahan/ Transfer Station
WtE: Waste to Energy

Sisa Perbandaran di W.P. Kuala Lumpur dihantar ke Stesen Pemindahan Taman Beringin untuk dilupuskan di TPS Bukit Tagar, Selangor manakala sisa di W.P. Putrajaya dilupuskan di TPS Tanjung 12, Selangor.
Municipal waste in W.P. Kuala Lumpur was sent to Taman Beringin Transfer Station for disposed at TPS Bukit Tagar, Selangor while waste at W.P. Putrajaya was disposed at TPS Tanjung 12, Selangor.

Jadual 3.11: Bilangan kemudahan rawatan dan pelupusan sisa perbandaran mengikut negeri¹, Malaysia, 2024

Table 3.11: Number of municipal waste treatment and disposal facilities by state, Malaysia, 2024

Negeri <i>State</i>	Tapak pelupusan di bawah seliaan SWCorp <i>Disposal site under SWCorp</i>	Tapak pelupusan bukan di bawah seliaan SWCorp <i>Disposal site not under SWCorp</i>
Jumlah <i>Total</i>	28	121
Johor	5	2
Kedah	4	-
Kelantan	-	10
Melaka	1	-
Negeri Sembilan	4	-
Pahang	11	2
Perak	1	16
Perlis	1	-
Pulau Pinang	-	4
Sabah	-	22
Sarawak	-	46
Selangor	-	9
Terengganu	-	9
W.P. Kuala Lumpur	1	-
W.P. Labuan	-	1
W.P. Putrajaya	-	-

Sumber: Kementerian Perumahan dan Kerajaan Tempatan
Source: Ministry of Housing and Local Government

Nota/ Notes:

¹ Merujuk kepada peraturan di bawah Akta Pengurusan Sisa Pepejal dan Pembersihan Awam 2007 (Akta 672) yang berkuatkuasa di Johor, Kedah, Melaka, Negeri Sembilan, Pahang, Perlis, W.P. Kuala Lumpur dan W.P. Putrajaya
Refer to regulations under Solid Waste and Public Cleansing Management Act 2007 (Act 672) enforced in Johor, Kedah, Melaka, Negeri Sembilan, Pahang, Perlis, W.P. Kuala Lumpur and W.P. Putrajaya

Perak tidak menggunapakai peraturan di bawah Akta Pengurusan Sisa Pepejal dan Pembersihan Awam 2007 (Akta 672), walau bagaimanapun LRT Pulau Pangkor dibawah seliaan Perbadanan Pengurusan Sisa Pepejal dan Pembersihan Awam (SWCorp).
Perak does not adopting the Solid Waste Management and Public Cleansing Act 2007 (Act 672), however the LRT Pulau Pangkor is under the

Jadual 3.12: Kuantiti buangan terjadual yang dihasilkan mengikut industri, Malaysia, 2020-2024

Table 3.12: Quantity of scheduled wastes generated by industry, Malaysia, 2020-2024

Tan metrik
Metric tonnes

Industri <i>Industries</i>	2020	2021	2022	2023	2024
Jumlah <i>Total</i>	7,185,227.8	7,505,195.8	5,915,073.8	5,841,596.8	5,378,977.6
Bengkel <i>Workshop</i>	107,379.5	150,999.4	116,659.0	258,061.7	133,190.8
Berasaskan getah <i>Rubber base</i>	205,709.1	225,648.9	229,888.3	213,995.8	182,828.1
Berasaskan kayu <i>Wood base</i>	3,382.8	3,431.2	3,910.3	6,538.7	2,986.9
Elektrik dan elektronik <i>Electric and electronic</i>	548,348.4	427,122.0	694,967.9	380,770.0	336,130.6
Fabrikasi logam <i>Metal fabrication</i>	38,978.8	43,250.0	22,509.1	22,127.7	26,276.1
Galian bukan logam <i>Excavation non metal</i>	15,932.1	16,268.1	36,007.9	102,202.4	83,087.8
Gudang <i>Warehouses</i>	137,354.8	8,962.6	52,876.2	11,187.8	12,615.3
Hotel <i>Hotel</i>	18.9	8.7	12.2	677.0	15.8
Industri kimia <i>Chemical industries</i>	739,280.9	595,492.4	559,784.0	574,076.2	566,012.9
Jentera <i>Machinery</i>	72,656.4	76,726.8	77,756.9	179,830.6	192,119.3
Kenderaan <i>Vehicle</i>	166,743.1	138,891.3	201,561.9	223,877.9	192,802.1
Kertas <i>Paper</i>	37,256.6	41,414.7	39,031.2	52,864.8	60,728.0
Kilang getah (PYDT) <i>Rubber factory</i>	1,474.2	1,392.5	1,834.0	1,439.4	1,501.6
Kilang kelapa sawit (PYDT) <i>Palm oil mills</i>	7,428.0	5,198.8	7,083.8	5,016.0	5,406.7
Kilang padi <i>Rice mills</i>	4.2	4.5	7.0	8.9	1,304.8
Kuari <i>Quarry</i>	4,436.4	28,980.7	4,676.4	4,302.3	4,330.6
Kulit <i>Leather</i>	265.9	198.6	138.0	576.7	34.5
Loji Pengolahan Kumbahan (IWK, Majari, PBT) <i>Sewage Treatment Plant (IWK, Majari, PBT)</i>	94.6	88.7	381.5	147.3	135.7
Loji janakuasa <i>Power plant</i>	2,491,477.7	3,141,511.8	2,025,501.5	1,809,917.7	1,816,379.6
Loji pengolahan kumbahan persendirian <i>Waste water treatment plant</i>	70.2	67.2	81.1	78.6	67.8
Loji rawatan air <i>Water treatment plants</i>	1,149,834.3	1,167,603.1	182,986.9	94,252.0	34,636.6
Makanan & minuman <i>Food & beverage</i>	10,177.5	10,258.4	10,139.5	14,021.5	14,011.4

Jadual 3.12: Kuantiti buangan terjadual yang dihasilkan mengikut industri, Malaysia, 2020-2024 (samb.)

Table 3.12: Quantity of scheduled wastes generated by industry, Malaysia, 2020-2024 (cont'd)

Tan metrik
Metric tonnes

Industri <i>Industries</i>	2020	2021	2022	2023	2024
Makanan ternakan <i>Livestock food</i>	428.4	35.7	42.7	51.2	44.2
Pembuatan payung dan lain-lain industri pembuatan <i>Others manufacturing</i>	3,647.1	3,376.7	3,073.1	7,598.3	2,442.9
Penapisan minyak makan <i>Edible oil refinery</i>	14,802.7	35,269.5	18,682.7	16,250.4	17,777.7
Penapisan petroleum <i>Petroleum refineries</i>	86,048.7	95,176.6	104,339.0	101,302.2	251,081.8
Pengilangan logam <i>Metal refinery</i>	571,217.6	642,947.9	778,653.2	1,114,619.2	706,829.1
Penternakan <i>Animal husbandary</i>	0.1	0.1	0.1	0.1	0.1
Penyudahan logam dan sadur elektrik <i>Metal finishing and electroplating</i>	144,852.9	51,696.8	69,058.2	78,595.8	133,484.9
Peralatan pejabat dan alat tulis <i>Office supplies and stationery</i>	270.9	281.7	214.4	350.3	190.2
Peralatan sukan dan permainan <i>Sports equipment and games</i>	920.4	974.6	1,077.0	960.9	1,160.6
Percetakan <i>Printing</i>	37,198.3	31,987.8	30,681.9	30,904.0	49,566.1
Perhutanan <i>Forestry</i>	7.8	2.2	4.4	7.0	1.4
Perikanan <i>Fishery</i>	2.0	2.2	0.8	0.8	0.4
Perkhidmatan <i>Services</i>	497.7	447.1	1,634.5	1,695.7	1,068.9
Perlombongan <i>Mining</i>	3,588.3	5,605.0	11,650.9	28,086.3	2,721.9
Pertanian <i>Agriculture</i>	3,438.4	3,133.8	4,904.4	3,524.2	3,352.8
Perubatan <i>Health care services</i>	34,267.6	67,206.4	72,867.8	47,512.6	46,734.9
Plastik <i>Plastic</i>	26,098.5	25,569.3	24,086.5	9,028.9	9,577.4
Premis buangan terjadual (PYDT) <i>Scheduled waste treatment and disposal facilities</i>	313,670.5	328,677.2	394,926.4	364,575.0	421,203.9
Restoran <i>Restaurant</i>	0.2	0.2	0.2	0.2	0.2
Rokok dan tembakau <i>Cigarettes and tobacco</i>	146.2	61.2	46.1	44.7	7.5
Simen <i>Cement</i>	2,747.9	2,060.8	2,560.0	2,792.1	3,332.6
Tapak pelupusan sampah <i>Sanitary landfill</i>	40.2	334.6	175.9	108.0	1,265.1

Jadual 3.12: Kuantiti buangan terjadual yang dihasilkan mengikut industri, Malaysia, 2020-2024 (samb.)

Table 3.12: Quantity of scheduled wastes generated by industry, Malaysia, 2020-2024 (cont'd)

Tan metrik
Metric tonnes

Industri Industries	2020	2021	2022	2023	2024
Tekstil Textiles	7,249.4	4,121.8	9,033.6	8,324.3	7,195.1
Lain-lain Others	195,781.7	122,705.9	119,565.8	69,293.7	53,335.2

Sumber: Jabatan Alam Sekitar
Source: Department of Environment

Nota: Mulai 2015, statistik ini termasuk buangan terjadual yang diuruskan di bawah pengurusan khas mengikut Peraturan 7, Peraturan-Peraturan Kualiti Alam Sekeliling (Buangan Terjadual) 2005 (Pengurusan Khas)

Note: Since 2015, these statistics include scheduled wastes managed under special management under Rule 7 of the Rules, the Environmental Quality (Scheduled Wastes) 2005 (Special Management)

Jadual 3.13: Buangan terjadual mengikut negeri, Malaysia, 2020-2024

Table 3.13: Scheduled wastes by state, Malaysia, 2020-2024

Tan metrik
Metric tonnes

Negeri State	2020	2021	2022	2023	2024
Malaysia	7,185,228	7,505,196	5,915,073	5,841,597	5,378,978
Johor	1,209,294	1,031,128	1,324,255	1,215,751	644,832
Kedah	159,938	177,690	248,366	180,271	267,120
Kelantan	12,650	6,949	6,528	5,898	7,720
Melaka	117,285	92,634	107,121	114,025	99,455
Negeri Sembilan	1,162,393	637,269	629,207	523,827	193,250
Pahang	251,161	307,469	285,812	410,057	1,224,856
Perak	438,911	1,957,521	579,736	527,892	119,392
Perlis	4,692	5,156	8,571	2,291	2,653
Pulau Pinang	405,501	331,492	309,294	263,175	236,298
Sabah	460,171	74,834	40,534	44,970	74,392
Sarawak	499,489	540,595	548,561	637,060	421,708
Selangor	2,048,558	2,086,127	1,581,215	1,559,162	1,678,148
Terengganu	264,374	171,640	158,037	208,025	213,605
W.P. Kuala Lumpur	94,676	30,843	25,567	25,003	26,024
W.P. Labuan	56,019	53,747	61,722	123,521	168,759
W.P. Putrajaya	118	101	547	666	764

Sumber: Jabatan Alam Sekitar
Source: Department of Environment

Jadual 3.14: Kuantiti buangan klinikal mengikut negeri, Malaysia, 2020-2024

Table 3.14: Quantity of clinical waste by state, Malaysia, 2020-2024

Tan metrik
Metric tonnes

Negeri State	2020	2021	2022	2023	2024
Malaysia	39,883.3	57,378.5	49,131.6	41,794.3	46,734.9
Johor	3,989.6	5,567.5	4,652.6	1,435.1	4,726.9
Kedah	1,659.7	2,390.2	1,972.3	1,952.0	1,867.9
Kelantan	1,377.4	1,857.4	1,681.3	1,738.3	1,755.1
Melaka	1,800.2	1,594.0	1,895.7	618.2	1,699.5
Negeri Sembilan	1,645.7	3,950.8	2,530.5	517.1	1,832.3
Pahang	2,999.4	2,461.9	1,879.1	2,238.2	2,239.9
Perak	792.8	4,326.4	820.8	5,052.7	2,965.7
Perlis	33.1	1,078.5	3,100.6	341.7	321.4
Pulau Pinang	3,336.0	2,206.4	3,952.7	3,016.1	2,864.2
Sabah	2,606.0	3,209.9	3,268.6	2,978.0	2,681.0
Sarawak	4,105.0	8,265.6	4,731.9	4,951.4	5,002.3
Selangor	9,703.4	12,992.8	10,554.0	10,346.2	11,814.6
Terengganu	937.5	1,287.0	1,182.6	1,197.2	1,199.6
W.P. Kuala Lumpur ¹	4,180.7	5,892.9	5,808.7	5,334.4	5,063.5
W.P. Labuan	716.8	296.4	1,100.3	77.8	94.5

Nota: ¹Termasuk W.P. Putrajaya
Notes: Includes W.P. Putrajaya

Sumber: Jabatan Alam Sekitar
Source: Department of Environment

Jadual 3.15: Peratus buangan terjadual mengikut kategori, Malaysia, 2022-2024

Table 3.15: Percentage of scheduled wastes by category, Malaysia, 2022-2024

Nama buangan Name of waste	Kod buangan Waste code	2022		2023		2024	
		Tan metrik Metric tonnes	%	Tan metrik Metric tonnes	%	Tan metrik Metric tonnes	%
Debu, sanga, dros atau abu yang mengandungi arsenik, raksa, plumbum, kadmium, kromium, nikel, kuprum, vanadium, berilium, antimony, tellurium, talium, atau selenium, tidak termasuk sanga daripada kilang besi dan keluli <i>Dust, slag, dross or ash containing arsenic, mercury, lead, cadmium, chromium, nickel, copper, vanadium, beryllium, antimony, tellurium, thallium or selenium excluding slag from iron and steel factory</i>	SW 104	2,780,750.6	47.0	2,611,858.2	44.7	2,546,939.6	47.4
Enap cemar yang mengandungi satu atau beberapa logam termasuklah kromium, kuprum, nikel, zink, plumbum, kadmium, aluminium, timah vanadium dan berilium <i>Sludges containing one or several metals including chromium, copper, nickel, zinc, lead, cadmium, aluminium, tin, vanadium and beryllium</i>	SW 204	549,179.8	9.3	637,112.2	10.9	366,108.9	6.8
Buangan gypsum yang terhasil daripada proses industri kimia atau loji janakuasa <i>Waste gypsum arising from chemical industry or power plant</i>	SW 205	441,008.4	7.5	564,540.6	9.7	546,530.4	10.2
Buangan daripada pemasangan elektrik dan elektronik yang mengandungi komponen seperti akumulator, suis raksa, kaca daripada tiub sinar katod dan kaca teraktif atau kapasitor bifenil terpoliklorin yang lain, atau yang dicemari dengan kadmium, raksa, plumbum, nikel, kromium, kuprum, litium, perak, mangan, atau bifenil terpoliklorin <i>Waste from electrical and electronic assemblies containing components such as accumulators, mercury-switches, glass from cathode-ray tubes and other activated glass or polychlorinated biphenyl-capacitors, or contaminated with cadmium, mercury, lead, nickel, chromium, copper, lithium, silver, manganese or polychlorinated biphenyl</i>	SW 110	286,205.8	4.8	65,280.1	1.1	55,470.1	1.0
Buangan atau enap cemar getah atau lateks yang mengandungi pelarut organik atau logam berat <i>Rubber or latex wastes or sludge containing organic solvents or heavy metals</i>	SW 321	210,857.1	3.6	155,395.5	2.7	330,367.5	6.1
Campuran buangan terjadual dan buangan tidak terjadual <i>A mixture of scheduled and non-scheduled wastes</i>	SW 422	195,007.0	3.0	163,732.2	2.8	257,494.7	4.8
Minyak pelincir terpakai <i>Spent lubricating oil</i>	SW 305	176,910.6	3.0	211,530.6	3.6	187,252.4	3.5
Emulsi minyak mineral-air terpakai <i>Spent mineral oil-water emulsion</i>	SW 307	171,056.6	2.9	237,593.5	4.1	58,479.5	1.1
Dadah terbuang yang mengandungi bahan psikotropik atau yang mengandungi bahan yang bertoksik, berbahaya, karsinogenik, mutagenik atau teratogenik <i>Discarded drugs containing psychotropic substances or containing substances that are toxic, harmful, carcinogenic, mutagenic or teratogenic</i>	SW 403	113,578.0	1.9	599.7	0.0	713.0	0.0
Buangan pelarut organik bukan terhalogen <i>Waste of non-halogenated solvent</i>	SW 322	112,332.0	1.9	126,727.9	2.2	167,899.9	3.1

Jadual 3.15: Peratus buangan terjadual mengikut kategori, Malaysia, 2022-2024 (samb.)

Table 3.15: Percentage of scheduled wastes by category, Malaysia, 2022-2024 (cont'd)

Nama buangan Name of waste	Kod buangan Waste code	2022		2023		2024	
		Tan metrik Metric tonnes	%	Tan metrik Metric tonnes	%	Tan metrik Metric tonnes	%
yang dicemari dengan bahan kimia, racun mahluk perosak, minyak mineral atau buangan terjadual <i>Disposed containers, bags or equipment contaminated with chemicals, pesticides, mineral oil or scheduled wastes</i>	SW 409	110,984.3	1.9	85,971.1	1.5	89,090.6	1.7
Enap cemar yang mengandungi fluorida <i>Sludge containing flouride</i>	SW 207	97,441.3	1.7	101,438.0	1.7	92,425.6	1.7
Asid tidak organik terpakai <i>Spent inorganic acids</i>	SW 206	76,253.9	1.3	88,558.2	1.5	89,275.1	1.7
Buangan minyak atau enap cemar berminyak <i>Waste oil or oily sludges</i>	SW 311	63,716.6	1.1	118,155.3	2.0	1,250.7	0.0
kalsium hidroksida, enap cemar pemfosfatan, enap cemar kalsium sulfit dan enap cemar karbonat <i>Mineral sludges including calcium hydroxide sludges, phosphating sludges, calcium sulphite sludges and carbonates sludges</i>	SW 427	62,728.6	1.1	173,732.7	3.0	21,906.4	0.4
Kain buruk, plastik, kertas atau turas yang dicemari dengan buangan terjadual <i>Rags, plastics, papers or filters contaminated with scheduled wastes</i>	SW 410	62,310.8	1.1	87,893.9	1.5	48,465.9	0.9
Buangan pelekat atau glu yang mengandungi pelarut organik tidak termasuk bahan polimer pepejal <i>Adhesive or glue waste containing organic solvents excluding solid polymeric materials</i>	SW 303	53,761.0	0.9	3,812.7	0.1	4,660.0	0.1
Buangan patogenik, buangan klinikal atau bahan yang dikuarantinkan <i>Pathogenic wastes, clinical wastes or quarantined materials</i>	SW 404	49,131.6	0.8	41,794.3	0.7	46,734.9	0.9
Apa-apa sisa daripada pengolahan atau pemerolehan kembali buangan terjadual <i>Any residues from treatment or recovery of scheduled wastes</i>	SW 501	36,096.4	0.6	43,827.8	0.8	82,890.6	1.5
Buangan dakwat, cat, pigmen, lakuer, perwarna atau varnis <i>Waste of inks, paints, pigments, lacquer, dye or varnish</i>	SW 417	35,899.1	0.6	77,605.4	1.3	46,439.4	0.9
Karbon teraktif yang terpakai tidak termasuk karbon daripada pengolahan air boleh diminum dan proses industri makanan dan penghasilan vitamin <i>Spent activated carbon excluding carbon from the treatment of potable water and processes of the food industry and vitamin production</i>	SW 411	25,874.9	0.4	6,759.0	0.1	3,670.1	0.1
Buangan resin tidak matang yang mengandungi pelarut organik atau logam berat termasuklah resin epoksi dan resin fenolik <i>Uncured resin waste containing organic solvents or heavy metals including epoxy resin and phenolic</i>	SW 325	22,373.4	0.4	22,127.2	0.4	3,129.3	0.1
Larutan pemprosesan terpakai, bahan kimia fotografi terbuang atau buangan fotografi terbuang <i>Spent processing solution, discarded photographic chemicals or discarded photographic wastes</i>	SW 423	21,068.8	0.4	21,119.9	0.4	20,892.7	0.4

Jadual 3.15: Peratus buangan terjadual mengikut kategori, Malaysia, 2022-2024 (samb.)

Table 3.15: *Percentage of scheduled wastes by category, Malaysia, 2022-2024 (cont'd)*

Nama buangan <i>Name of waste</i>	Kod buangan <i>Waste code</i>	2022		2023		2024	
		Tan metrik <i>Metric tonnes</i>	%	Tan metrik <i>Metric tonnes</i>	%	Tan metrik <i>Metric tonnes</i>	%
Enap cemar dakwat, cat pigmen, lakuer, perwarna atau varnis <i>Sludges of inks, paints, pigments, lacquer, dye or varnish</i>	SW 416	19,658.7	0.3	32,520.5	0.6	19,660.4	0.4
Buangan mangkin <i>Waste catalyst</i>	SW 202	18,779.8	0.3	15,156.5	0.3	140,473.9	2.6
Campuran minyak-air seperti air ballast <i>Oil-water mixture such as ballast water</i>	SW 309	16,952.6	0.3	28,832.6	0.5	26,579.2	0.5
Bahan kimia yang terbuang atau tidak mengikut spesifikasi <i>Chemicals that are discarded or off-specification</i>	SW 429	16,528.5	0.3	16,580.9	0.3	16,660.9	0.3
atau varnish yang terbuang atau yang tidak mengikut spesifikasi yang mengandungi pelarut organik <i>Discarded or off-specification inks, paints, pigments, lacquer, dye or varnish products containing organic solvent</i>	SW 418	10,523.8	0.2	13,968.0	0.2	36,065.2	0.7
Alkali terpakai yang mengandungi logam berat <i>Used alkali containing heavy metals</i>	SW 401	9,497.0	0.2	12,285.0	0.2	9,447.8	0.2
Minyak hidraulik terpakai <i>Spent hydraulic oil</i>	SW 306	8,611.1	0.2	6,319.1	0.1	5,739.9	0.1
Buangan pelarut organik terhalogen <i>Waste of halogenated solvents</i>	SW 323	6,384.8	0.1	6,636.5	0.1	7,219.3	0.1
Campuran buangan terjadual <i>A mixture of scheduled wastes</i>	SW 421	6,228.8	0.1	15,446.3	0.3	4,584.6	0.1
Buangan cecair terma (pemindahan haba) seperti glikol etilena <i>Waste of thermal fluids (heat transfer) such as ethylene glycol</i>	SW 327	5,738.2	0.1	4,349.2	0.1	4,623.4	0.1
Tanah, puing, atau bahan tercemar yang terhasil daripada pembersihan tumpahan bahan kimia, minyak mineral, atau buangan terjadual <i>Contaminated soil, debris or matter resulting from cleaning-up of a spill of chemical, mineral oil or scheduled wastes</i>	SW 408	5,284.6	0.1	3,292.1	0.1	4,078.2	0.1
Buangan bateri asid plumbum dalam bentuk sempurna atau hancur <i>Waste of lead acid batteries in whole or crushed form</i>	SW 102	5,275.1	0.1	7,749.4	0.1	5,882.1	0.1
Minyak atau enap cemar daripada operasi penyenggaraan loji penapisan minyak <i>Oil or sludge from oil refinery plant maintenance operation</i>	SW 314	4,006.0	0.1	1,019.5	0.0	2,304.1	0.0
atau sama dengan 11.5 yang mengakis atau berbahaya <i>Spent alkalis with pH more or equal to 11.5 which are corrosive or hazardous</i>	SW 402	3,332.8	0.1	3,644.7	0.1	6,027.0	0.1
Klinker, sanga dan abu dari penunu buangan terjadual <i>Clinker, slag and ashes from scheduled wastes incinerator</i>	SW 406	3,382.5	0.1	4,812.1	0.1	4,526.4	0.1
Buangan bateri yang mengandungi kadmium dan nikel atau raksa atau litium <i>Waste of batteries containing cadmium and nickel or mercury or lithium</i>	SW 103	3,280.3	0.1	2,802.2	0.1	1,065.8	0.0

Jadual 3.15: Peratus buangan terjadual mengikut kategori, Malaysia, 2022-2024 (samb.)

Table 3.15: *Percentage of scheduled wastes by category, Malaysia, 2022-2024 (cont'd)*

Nama buangan <i>Name of waste</i>	Kod buangan <i>Waste code</i>	2022		2023		2024	
		Tan metrik <i>Metric tonnes</i>	%	Tan metrik <i>Metric tonnes</i>	%	Tan metrik <i>Metric tonnes</i>	%
Sisa berminyak dari bengkel automotif, stesen servis minyak atau perangkap gris <i>Oily residue from automotive workshop, service station, oil or grease interceptor</i>	SW 312	2,578.6	0.0	3,033.4	0.1	6,996.4	0.1
Asid organik terpakai dengan pH yang kurang daripada atau sama dengan 2 yang mengakis atau berbahaya <i>Spent organic acids with pH less or equal to 2 which are corrosive or hazardous</i>	SW 301	2,475.1	0.0	1,768.3	0.0	798.2	0.0
Larutan alkali berair terpakai yang mengandungi sianida <i>Spent aqueous alkaline containing cyanide</i>	SW 414	1,719.6	0.0	1,019.8	0.0	1,479.1	0.0
Buangan yang mengandungi formaldehid <i>Waste containing formaldehyde</i>	SW 320	1,681.0	0.0	1,123.9	0.0	697.4	0.0
Buangan yang mengandungi raksa atau sebatianannya <i>Waste containing mercury or its compound</i>	SW 109	1,411.7	0.0	1,594.8	0.0	1,558.9	0.0
Enap cemar dari tangki penyimpanan minyak mineral <i>Sludge from mineral oil storage tank</i>	SW 310	1,380.7	0.0	1,246.8	0.0	1,250.7	0.0
Enap cemar dari tangki minyak <i>Oil tankers sludges</i>	SW 308	1,070.1	0.0	4,169.7	0.1	122.1	0.0
Buangan asbestos dalam bentuk enap cemar, debu atau gentian <i>Asbestos wastes in sludges, dust or fibre forms</i>	SW 201	959.2	0.0	1,329.8	0.0	306.0	0.0
Buangan yang terhasil daripada peyediaan dan pengeluaran barangan farmaseutikal <i>Waste arising from the preparation and production of pharmaceutical product</i>	SW 405	818.1	0.0	552.5	0.0	564.7	0.0
Buangan terjadual tidak boleh bergerak termasuklah enap cemar yang ditetapkan secara kimia, dikapsulkan, dipejalkan atau distabilkan <i>Immobilized scheduled wastes including chemically fixed, encapsulated, solidified or stabilized sludges</i>	SW 203	639.3	0.0	867.1	0.0	179.8	0.0
Tar atau sisa bertar dari loji penapisan minyak atau loji petrokimia <i>Tar or tarry residues from oil refinery or petrochemical plant</i>	SW 315	608.9	0.0	632.4	0.0	424.4	0.0
Bahan kimia makmal yang usang <i>Obsolete laboratory chemicals</i>	SW 430	424.1	0.0	373.0	0.0	347.3	0.0
Buangan sisa penyulingan tidak berair terhalogen atau bukan terhalogen yang terhasil daripada proses permeolehan kembali pelarut organik <i>Waste of halogenated or unhalogenated non-aqueous distillation residues arising from organic solvents recovery process</i>	SW 324	323.2	0.0	259.3	0.0	411.9	0.0
Tanah yang dicemari minyak daripada penapisan semula minyak pelincir terpakai <i>Oil contaminated earth from re-refining of used lubricating oil</i>	SW 313	277.7	0.0	320.8	0.0	259.5	0.0
Buangan fluks yang mengandungi campuran asid organik, pelarut atau sebatian ammonium klorida <i>Flux waste containing mixture of organic acids, solvents or compounds of ammonium chloride</i>	SW 302	204.2	0.0	196.9	0.0	182.6	0.0

Jadual 3.15: Peratus buangan terjadual mengikut kategori, Malaysia, 2022-2024 (samb.)

Table 3.15: *Percentage of scheduled wastes by category, Malaysia, 2022-2024 (cont'd)*

Nama buangan <i>Name of waste</i>	Kod buangan <i>Waste code</i>	2022		2023		2024	
		Tan metrik <i>Metric tonnes</i>	%	Tan metrik <i>Metric tonnes</i>	%	Tan metrik <i>Metric tonnes</i>	%
Buangan daripada pengeluaran, formulasi, perdagangan atau penggunaan racun mahkluk perosak, racun herba atau biosid <i>Wastes from the production, formulation, trade or use of pesticides, herbicides or biocides</i>	SW 425	164.7	0.0	136.0	0.0	50.1	0.0
Sisa dari pemerolehan kembali likuor penjerukan asid <i>Residue from recovery of acid pickling liquor</i>	SW 106	126.6	0.0	79.3	0.0	99.6	0.0
Produk yang tidak mengikut spesifikasi daripada pengeluaran, formulasi, perdagangan, atau penggunaan racun mahkluk perosak, racun herba, atau biosid <i>Off-specification products from the production, formulation, trade or use of pesticides, herbicides or biocides</i>	SW 426	67.2	0.0	72.7	0.0	27.7	0.0
Diisosiانات terpakai dan sisa sebatian isosiانات tidak termasuk bahan berpolimer pepejal daripada proses pengilangan busa <i>Spent di-isocyanates and residues of isocyanate compounds excluding solid polymeric material from foam manufacturing process</i>	SW 419	56.3	0.0	42.3	0.0	59.7	0.0
Enap cemar asid <i>Acid sludge</i>	SW 316	51.5	0.0	9.5	0.0	17.2	0.0
Buangan fenol atau sebatian fenol termasuklah klorofenol dalam bentuk cecair atau enapcemar <i>Waste of phenols or phenol compounds including chlorophenol in the form of liquids or sludges</i>	SW 319	40.0	0.0	18.6	0.0	11.1	0.0
Buangan yang mengandungi arsenik atau sebatianannya <i>Waste containing arsenic or its compound</i>	SW 101	34.8	0.0	47.7	0.0	63.4	0.0
Buangan yang mengandungi, yang terdiri daripada, atau yang dicemari dengan peroksida <i>Waste containing, consisting of or contaminated with peroxides</i>	SW 432	22.4	0.0	28.2	0.0	25.8	0.0
Buangan daripada pengilangan atau pemprosesan atau penggunaan bahan letupan <i>Waste from manufacturing or processing or use of explosives</i>	SW 431	21.8	0.0	23.9	0.0	-	0.0
Agen pengoksidaan terpakai <i>Spent oxidizing agent</i>	SW 424	17.5	0.0	47.4	0.0	25.8	0.0
Enap cemar yang mengandungi sianida <i>Sludges containing cyanide</i>	SW 412	4.1	0.0	0.5	0.0	0.3	0.0
Sanga daripada pemprosesan kuprum bagi pemprosesan lanjut atau penapisan yang mengandungi arsenik, plumbum, atau kadmium <i>Slags from copper processing for further processing or refining containing arsenic, lead or cadmium</i>	SW 107	1.3	0.0	11.5	0.0	1.0	0.0
Sisa larutan resap daripada pemprosesan zink dalam bentuk debu dan enap cemar <i>Leaching residues from zinc processing in dust and sludges form</i>	SW 108	1.2	0.0	3.4	0.0	1.1	0.0
Garam terpakai yang mengandungi sianida <i>Spent salt containing cyanide</i>	SW 413	1.0	0.0	1.0	0.0	1.0	0.0
Buangan sebatian fosforus organik <i>Waste of organic phosphorus compound</i>	SW 326	0.9	0.0	0.9	0.0	0.9	0.0

Jadual 3.15: Peratus buangan terjadual mengikut kategori, Malaysia, 2022-2024 (samb.)

Table 3.15: Percentage of scheduled wastes by category, Malaysia, 2022-2024 (cont'd)

Nama buangan Name of waste	Kod buangan Waste code	2022		2023		2024	
		Tan metrik Metric tonnes	%	Tan metrik Metric tonnes	%	Tan metrik Metric tonnes	%
Sebatian organologam terpakai termasuklah plumbum tetraetil, plumbum tetrametil dan sebatian organotimah <i>Spent organometallic compounds including tetraethyl lead, tetramethyl lead and organotin compounds</i>	SW 317	0.1	0.0	0.1	0.0	0.1	0.0
Buangan yang mengandungi dioksin atau furan <i>Waste containing dioxins or furans</i>	SW 407	0.1	0.0	0.0	0.0	0.0	0.0
Enap cemar galvani <i>Galvanic sludges</i>	SW 105	-	0.0	-	0.0	-	0.0
Kek tekan daripada prapengolahan lai sabun gliserol <i>Press cake from pretreatment of glycerol soap lye</i>	SW 304	-	0.0	-	0.0	-	0.0
Buangan, bahan dan artikel yang mengandungi atau yang dicemari dengan bifenil terpoliklorin (BFT) atau trifenil terpoliklorin (TFT) <i>Waste, substances and articles containing or contaminated with polychlorinated biphenyls (PCB) or polychlorinated triphenyls (PCT)</i>	SW 318	-	0.0	4.8	0.0	-	0.0
Minyak pelindapan terpakai yang mengandungi sianida <i>Spent quenching oil containing cyanide</i>	SW 415	-	0.0	-	0.0	-	0.0
Larutan resap dari tapak pelupusan buangan terjadual <i>Leachate from scheduled waste landfill</i>	SW 420	-	0.0	-	0.0	-	0.0
Buangan daripada operasi pengawetan kayu yang menggunakan garam tidak organik yang mengandungi kuprum, kromium, atau arsenik daripada sebatian fluoride atau yang menggunakan sebatian yang mengandungi fenol berklorin atau kreosot <i>Wastes from wood preserving operation using inorganic salts containing copper, chromium or arsenic of fluoride compounds or using compound containing chlorinated phenol or creosote</i>	SW 428	-	0.0	10.5	0.0	-	0.0

Sumber: Jabatan Alam Sekitar
Source: Department of Environment

Jadual 3.16: Kuantiti buangan terjadual yang dieksport mengikut jenis buangan, Malaysia, 2020-2024

Table 3.16: Quantity of scheduled wastes exported by type of waste, Malaysia, 2020-2024

					Tan metrik Metric tonnes
Jenis buangan Type of waste	2020	2021	2022	2023	2024
Malaysia	168,002	114,845	4,329	51,199	174,041
Buangan bateri nikel-kadmium Nickel cadmium battery waste	190	435	-	110	-
Buangan elektrik & elektronik Electrical & electronic waste	1,680	1,595	-	385	240
Dross aluminium Aluminium dross	1,800	2,184	2,160	2,160	3,600
Enap cemar hidroksida logam Metal hydroxide sludge	160	-	-	-	-
Mangkin terpakai Spent catalyst	319	1,196	1,269	240	7,878
Pelarut organik Waste organic solvent	480	-	240	240	-
Toner terpakai Used toner	500	-	500	-	-
Glass Waste from CRT	-	-	-	-	-
Wire Saw Slurry	693	420	-	-	-
Sisa Residue	162,180	244	-	64	-
Buangan minyak atau enap cemar berminyak Waste of oil or oily sludge	-	108,000	-	48,000	162,000
Bahan kimia yang terbuang atau tidak mengikut spesifikasi Chemicals that are discarded or off-specification	-	46	-	-	33
Enapcemar yang mengandungi logam Sludges containing metals	-	224	160	-	320
Produk dakwat, cat, pigmen, lakuer, pewarna atau varnis yang terbuang atau yang tidak mengikut spesifikasi yang mengandungi pelarut organik Discarded or off-specification inks, paints, pigments, lacquer, dye or varnish products containing organic solvent	-	500	-	-	-

Sumber: Jabatan Alam Sekitar
Source: Department of Environment

Jadual 3.17: Bilangan tapak pelupusan sisa pepejal yang beroperasi mengikut negeri, Malaysia, 2020-2024

Table 3.17: Number of operating solid waste landfills by state, Malaysia, 2020-2024

Negeri State	2020			2021			2022			2023			2024		
	Tapak pelupusan Landfills														
	Sanitari Sanitary	Bukan sanitari Non sanitary	Lengai Inert	Sanitari Sanitary	Bukan sanitari Non sanitary	Lengai Inert	Sanitari Sanitary	Bukan sanitari Non sanitary	Lengai Inert	Sanitari Sanitary	Bukan sanitari Non sanitary	Lengai Inert	Sanitari Sanitary	Bukan sanitari Non sanitary	Lengai Inert
Malaysia	142			141			142			141			140		
Johor	1	8	-	1	7	-	1	7	-	1	6	-	1	6	-
Kedah	3	1	-	3	1	-	3	1	-	3	1	-	3	-	-
Kelantan	-	10	-	-	10	-	-	10	-	-	10	-	-	10	-
Melaka	1	-	-	1	-	-	1	-	-	1	-	-	1	-	-
Negeri Sembilan	1	2	-	1	2	-	1	2	-	2	1	-	2	1	-
Pahang	3	7	-	3	7	-	3	7	1	3	7	1	3	7	1
Perak	1	15	-	1	15	-	1	15	-	1	15	-	2	14	-
Perlis	1	-	-	1	-	-	1	-	-	1	-	-	1	-	-
Pulau Pinang	1	-	1	1	-	1	1	-	1	1	-	1	1	-	1
Sabah	1	21	-	1	21	-	1	21	-	1	21	-	1	21	-
Sarawak	3	43	-	3	43	-	3	43	-	3	43	-	3	43	-
Selangor	3	2	3	3	2	3	3	2	3	3	2	3	3	2	3
Terengganu	1	8	-	1	8	-	1	8	-	1	8	-	1	8	-
W.P. Labuan	1	-	-	1	-	-	1	-	-	1	-	-	1	-	-
Jumlah Total	21	117	4	21	116	4	21	116	5	22	114	5	23	112	5

Sumber: Kementerian Perumahan dan Kerajaan Tempatan
Source: Ministry of Housing and Local Government

Jadual 3.18: Pengeluaran dan import baja, Malaysia, 2020-2024

Table 3.18: Production and imports of fertilisers, Malaysia, 2020-2024

Tan metrik
Metric tonnes

Tahun Year	Pengeluaran ¹ Production	Import baja Imports of fertilisers
2020	4,080,289	3,213,222
2021	5,839,960	4,138,517
2022	7,584,494	3,511,062
2023	5,906,343	4,138,517
2024	5,369,283	3,213,222

Nota: ¹Termasuk urea
Notes: Includes urea

Jadual 3.19: Pengeluaran herbisid, Malaysia, 2020-2024

Table 3.19: Production of herbicides, Malaysia, 2020-2024

Tahun Year	Herbisid (bukan cecair) Herbicides (non-liquid) (tan metrik/ tonnes)	Herbisid (cecair) Herbicides (liquid) (‘000 liter/ litres)
2020	43,157	55,497
2021	66,062	68,379
2022	91,308	97,264
2023	57,643	91,732
2024	27,890	71,789

KOMPONEN COMPONENT 4

KEJADIAN EKSTREM DAN BENCANA

EXTREME EVENTS AND DISASTERS



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Jadual 4.1: Kejadian bencana di Malaysia, 2020-2024

Table 4.1: Disaster events in Malaysia, 2020-2024

Negeri State	2020	2021	2022	2023	2024
Jumlah Total	64	68	139	170	228
Banjir Flood	51	61	109	166	218
Ribut Storm	1	2	7	1	1
Tanah runtuh Landslide	1	3	5	2	2
Kebakaran Fire	11	2	18	1	7
Chemical, biological, radiological and nuclear (CBRN)	-	-	-	-	-

Sumber: Agensi Pengurusan Bencana Negara
Source: National Disaster Management Agency

Nota: Bilangan kejadian bencana adalah berdasarkan keluarga dan mangsa yang telah ditempatkan di Pusat Pemindahan Sementara (PPS) akibat bencana

Notes: Number of disaster events is based on families and victims placed at TemporaryEvacuation Centers (PPS) affected by disaster

Jadual 4.2: Impak bencana di Malaysia, 2020-2024

Table 4.2: Disaster impact in Malaysia, 2020-2024

Negeri State	2020	2021	2022	2023	2024
Mangsa Victim	35,376	208,643	192,707	201,712	259,841
Keluarga Family	9,750	53,814	53,095	59,109	80,420
Pusat pemindahan Evacuation center	510	1778	1498	1,218	1,520
Kematian Death	16	58	50	-	18
Populasi terjejas (peratus) Population affected (percentage)	0.11	0.64	0.58	0.6	0.76

Sumber: Agensi Pengurusan Bencana Negara
Source: National Disaster Management Agency

Jadual 4.3: Kejadian bencana mengikut negeri, Malaysia, 2020-2024

Table 4.3: Disaster events by state, Malaysia, 2020-2024

Negeri State	Tahun Year	Bilangan kejadian Number of events	Mangsa Victim	Keluarga Family	Pusat pemindahan Evacuation center	Kematian Death
Malaysia	2020	64	35,376	9,750	510	16
	2021	68	208,643	53,814	1,778	58
	2022	139	192,707	53,095	1,498	50
	2023	170	201,712	59,109	1,218	9
	2024	228	259,841	80,420	1,520	18
Johor	2020	5	4,336	1,308	63	3
	2021	5	17,530	4,530	119	-
	2022	16	11,592	1,799	159	1
	2023	24	97,214	27,396	489	5
	2024	21	16,096	4,498	120	2
Kedah	2020	6	1,508	437	34	-
	2021	5	2,681	757	62	6
	2022	9	2,470	621	32	3
	2023	9	2,889	863	30	-
	2024	23	30,353	9,735	162	3
Kelantan	2020	2	2,101	679	50	5
	2021	5	18,246	5,065	187	4
	2022	10	57,962	17,652	263	7
	2023	15	43,730	13,944	144	3
	2024	23	111,455	34,766	366	5
Melaka	2020	3	818	236	13	-
	2021	5	3,069	738	42	-
	2022	4	3,547	931	38	-
	2023	5	836	218	11	-
	2024	10	1,858	480	26	-
Negeri Sembilan	2020	5	632	145	9	-
	2021	4	907	212	23	-
	2022	6	2,333	653	28	-
	2023	5	1,249	364	36	-
	2024	11	2,820	775	34	-
Pahang	2020	5	1,093	294	28	8
	2021	6	94,865	25,613	841	21
	2022	13	6,160	1,590	114	2
	2023	28	11,946	3,382	114	1
	2024	24	7,778	2,599	107	2
Perak	2020	8	1,878	543	43	-
	2021	9	2,939	851	40	-
	2022	12	3,015	841	53	-
	2023	21	2,266	609	35	-
	2024	28	6,195	1,759	65	-
Perlis	2020	1	6	20	1	-
	2021	1	98	27	3	-
	2022	3	38	10	3	-
	2023	2	131	42	2	-
	2024	3	1,974	619	16	-

Jadual 4.3: Kejadian bencana mengikut negeri, Malaysia, 2020-2024 (samb.)

Table 4.3: Disaster events by state, Malaysia, 2020-2024 (cont'd)

Negeri State	Tahun Year	Bilangan kejadian Number of events	Mangsa Victim	Keluarga Family	Pusat pemindahan Evacuation center	Kematian Death
Pulau Pinang	2020	5	241	51	4	-
	2021	2	59	19	3	-
	2022	2	402	91	4	-
	2023	2	116	31	3	-
	2024	4	764	205	12	-
Sabah	2020	2	1,363	423	16	-
	2021	6	9,926	3,088	74	2
	2022	23	10,742	3,231	95	-
	2023	18	13,946	4,783	76	-
	2024	15	1,816	518	17	1
Sarawak	2020	4	626	182	5	-
	2021	6	9,217	2,407	105	-
	2022	9	1,923	525	30	-
	2023	10	1,552	393	18	-
	2024	12	3,000	786	30	1
Selangor	2020	10	2,135	568	40	-
	2021	9	28,952	5,285	178	25
	2022	20	6,382	1,667	77	35
	2023	14	1,340	360	26	-
	2024	24	4,642	1,225	39	-
Terengganu	2020	2	18,429	4,799	199	-
	2021	2	19,515	5,051	96	-
	2022	8	85,253	23,195	592	2
	2023	17	24,497	6,724	234	-
	2024	28	71,070	22,451	524	4
W.P. Kuala Lumpur	2020	4	43	11	4	-
	2021	3	599	164	4	-
	2022	4	888	289	10	-
	2023	-	-	-	-	-
	2024	1	8	1	1	-
W.P. Labuan	2020	2	167	54	1	-
	2021	1	40	7	1	-
	2022	-	-	-	-	-
	2023	-	-	-	-	-
	2024	1	12	3	1	-
W.P. Putrajaya	2020	-	-	-	-	-
	2021	-	-	-	-	-
	2022	-	-	-	-	-
	2023	-	-	-	-	-
	2024	-	-	-	-	-

Sumber: Agensi Pengurusan Bencana Negara
Source: National Disaster Management Agency

Nota: Bilangan kejadian bencana adalah berdasarkan keluarga dan mangsa yang telah ditempatkan di Pusat Pemindahan Sementara (PPS) akibat bencana
Notes: Number of disaster events is based on families and victims placed at TemporaryEvacuation Centers (PPS) affected by disaster

Jadual 4.4: Bilangan kejadian banjir yang dilaporkan mengikut negeri, Malaysia, 2020-2024

Table 4.4: Number of flood incidents reported by state, Malaysia, 2020-2024

Negeri State	2020	2021	2022	2023	2024
Malaysia	869	1057	983	809	1,345
Johor	35	92	92	72	68
Kedah	79	88	108	99	101
Kelantan	19	29	26	36	58
Melaka	32	21	39	28	42
Negeri Sembilan	42	56	99	39	67
Pahang	70	95	69	33	70
Perak	100	119	7	25	67
Perlis	9	3	5	7	27
Pulau Pinang	28	30	13	58	56
Sabah	44	85	63	58	49
Sarawak	225	270	242	161	459
Selangor	132	120	107	75	75
Terengganu	39	36	107	118	199
W.P. Kuala Lumpur	13	4	3	-	2
W.P. Labuan	2	9	3	-	5

Sumber: Jabatan Pengairan dan Saliran
Source: Department of Irrigation and Drainage

Table 4.5: Number of earthquake incidents, Malaysia, 2020-2024

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Jadual 4.5: Bilangan kejadian gempa bumi, Malaysia, 2020-2024 (samb.)

Table 4.5: Number of earthquake incidents, Malaysia, 2020-2024 (cont'd)

Lokasi Location	Tahun Year	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.	Jumlah Total
Kota Belud, Sabah	2020 M	-	-	-	-	-	-	-	-	1	-	-	-	1
		2.3												
	2021 M	-	-	-	-	-	-	-	-	-	-	-	-	-
		-												
	2022 M	-	-	-	-	-	-	-	-	-	-	-	-	-
		-												
Kota Kinabalu, Sabah	2023 M	-	-	-	-	-	-	-	1	-	-	-	-	1
		1.9												
	2024 M	-	-	-	1	-	-	1	-	-	-	-	-	2
		1.3 - 2.0												
	2020 M	1	-	-	-	-	-	-	-	-	-	-	-	1
		1.9												
Kota Marudu, Sabah	2021 M	-	-	-	-	-	-	-	-	-	-	-	-	-
		-												
	2022 M	-	-	-	-	-	-	-	-	-	-	-	-	-
		-												
	2023 M	-	-	-	-	-	-	-	-	-	-	-	-	-
		-												
Kudat, Sabah	2024 M	-	-	-	-	-	-	-	-	-	-	-	-	-
		-												
	2020 M	-	-	1	-	-	-	-	-	-	-	-	-	1
		2.1												
	2021 M	-	-	-	1	-	-	-	-	-	-	-	-	1
		1.5												
Kunak, Sabah	2022 M	-	-	-	-	1	1	-	-	-	-	-	-	2
		1.9 - 2.1												
	2023 M	-	-	-	-	-	-	-	-	-	-	-	-	-
		-												
	2024 M	-	-	-	-	-	-	-	-	-	-	-	-	-
		-												
Kudat, Sabah	2020 M	-	-	1	-	-	1	-	-	1	-	-	-	3
		2.2 - 3.6												
	2021 M	-	-	-	-	-	-	-	-	-	-	-	-	-
		-												
	2022 M	-	-	-	-	-	-	-	-	-	-	-	-	-
		-												
Kunak, Sabah	2023 M	-	-	-	-	-	-	-	-	-	-	-	-	-
		-												
	2024 M	-	-	-	-	-	-	-	-	-	-	-	-	-
		-												
	2020 M	-	2	-	5	-	-	-	-	-	-	1	-	8
		2.1 - 3.6												
Kunak, Sabah	2021 M	-	-	-	-	-	1	-	-	-	-	-	-	1
		2.8												
	2022 M	-	1	-	-	-	-	-	-	-	-	-	-	1
		2.2												
	2023 M	-	-	-	-	-	-	-	-	-	-	-	-	-
		-												
Kunak, Sabah	2024 M	-	-	-	-	-	-	-	-	-	-	-	-	-
		-												

Jadual 4.5: Bilangan kejadian gempa bumi, Malaysia, 2020-2024 (samb.)

Table 4.5: Number of earthquake incidents, Malaysia, 2020-2024 (cont'd)

Lokasi Location	Tahun Year	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.	Jumlah Total
Kundasang, Sabah	2020 M	2	-	3	-	-	-	-	2	1	4	1	-	13
		1.4 - 2.9												
	2021 M	2	2	3	8	-	-	-	-	1	-	3	2	21
		1.0 - 3.4												
	2022 M	3	11	8	8	5	5	5	4	2	-	1	-	52
		0.9 - 3.5												
Lahad Datu, Sabah	2023 M	-	-	-	-	-	-	-	2	-	-	-	-	2
		1.2 - 2.1												
	2024 M	-	-	-	-	-	-	-	-	-	-	-	-	-
		-												
	2020 M	-	-	1	-	1	-	1	2	1	-	-	-	6
		2.0 - 3.3												
Laut China Selatan (South China Sea)	2021 M	-	-	-	-	-	-	-	-	-	-	-	-	-
		-												
	2022 M	-	-	-	1	-	-	-	-	-	-	-	-	1
		2.8												
	2023 M	-	-	-	-	-	-	-	-	1	-	-	-	1
		2.4												
Nabawan, Sabah	2024 M	-	-	-	-	-	-	-	-	-	-	-	-	-
		-												
	2020 M	-	-	-	-	-	-	-	-	-	-	-	-	-
		-												
	2021 M	-	-	-	-	-	-	-	-	-	-	-	-	-
		-												
Perairan Kunak, Sabah	2022 M	-	-	1	-	-	-	-	-	-	-	-	-	1
		2.5												
	2023 M	-	-	-	-	-	-	-	-	-	-	-	-	-
		-												
	2024 M	-	-	-	-	-	-	-	-	-	-	-	-	-
		-												
Perairan Kunak, Sabah	2020 M	-	-	-	-	-	-	-	-	-	-	-	-	-
		-												
	2021 M	-	-	-	-	-	-	-	-	-	-	-	-	-
		-												
	2022 M	-	-	-	-	-	1	-	-	-	-	-	-	1
		2.2												
Perairan Kunak, Sabah	2023 M	-	-	-	-	-	-	-	-	-	-	-	-	-
		-												
	2024 M	-	-	-	-	-	-	-	-	-	-	-	-	-
		-												
	2020 M	-	-	-	-	-	-	-	-	-	-	-	-	-
		-												

Jadual 4.5: Bilangan kejadian gempa bumi, Malaysia, 2020-2024 (samb.)

Table 4.5: Number of earthquake incidents, Malaysia, 2020-2024 (cont'd)

Lokasi Location	Tahun Year	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.	Jumlah Total
Perairan Sabah Timur, Sabah	2020 M	-	-	-	-	-	-	-	-	-	-	-	-	-
	2021 M	-	-	-	-	-	-	-	-	-	-	-	-	-
	2022 M	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023 M	-	-	-	-	-	-	-	-	-	-	-	-	-
	2024 M	1	-	-	-	-	-	-	-	-	-	-	-	1
							3.6							
Perairan Tawau, Sabah	2020 M	-	-	-	-	-	-	-	-	-	-	-	-	-
	2021 M	-	-	-	-	-	-	-	-	-	-	-	-	-
	2022 M	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023 M	-	-	-	-	-	-	-	-	-	-	-	-	-
	2024 M	-	-	-	-	-	-	-	1	-	-	-	-	1
							3.9							
Pitas, Sabah	2020 M	-	-	1	-	-	-	-	-	-	-	-	-	1
	2021 M	-	-	-	1	-	-	-	-	-	-	-	-	1
	2022 M	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023 M	-	-	-	-	-	-	-	-	-	-	-	-	-
	2024 M	-	-	-	-	-	-	-	-	-	-	-	-	-
							-							
Ranau, Sabah	2020 M	8	2	-	-	-	-	-	-	-	2	-	-	12
	2021 M	1	1	-	3	-	-	-	-	-	-	1	1	7
	2022 M	3	-	4	5	-	2	-	2	-	-	-	-	16
	2023 M	1	-	-	-	-	-	-	3	2	-	-	1	6
	2024 M	2	2	1	2	1	-	2	-	-	2	1	2	15
							1.1 - 3.1							
Sabah Coastal Area, Sabah	2020 M	-	-	1	-	-	-	-	-	-	-	-	1	2
	2021 M	-	-	-	-	-	-	-	-	-	-	-	-	-
	2022 M	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023 M	-	-	-	-	-	-	-	-	1	-	-	-	1
	2024 M	-	-	-	-	-	1	-	-	-	-	-	-	1
							3.3							

Jadual 4.5: Bilangan kejadian gempa bumi, Malaysia, 2020-2024 (samb.)

Table 4.5: Number of earthquake incidents, Malaysia, 2020-2024 (cont'd)

Lokasi Location	Tahun Year	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.	Jumlah Total
Sandakan, Sabah	2020 M	-	-	1	-	-	-	-	-	-	-	-	1	2
		2.7												
	2021 M	-	-	-	-	-	-	-	-	-	-	-	-	-
	2022 M	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023 M	-	-	-	-	-	-	-	-	-	-	-	-	-
	2024 M	-	-	-	-	-	-	-	-	-	-	-	-	-
Sapulut, Sabah	2020 M	-	-	-	-	-	-	-	-	-	-	-	-	-
	2021 M	-	-	-	-	-	-	-	-	-	-	-	-	-
	2022 M	-	-	-	-	-	-	-	1	-	-	-	-	1
		2.9												
	2023 M	-	-	-	-	-	-	-	-	-	-	-	-	-
	2024 M	-	-	-	-	-	-	-	-	-	-	-	-	-
Semporna, Sabah	2020 M	-	-	-	1	-	-	-	1	-	-	-	-	2
		2.8 - 3.5												
	2021 M	1	-	-	-	-	-	-	-	1	-	-	-	2
		2.9 - 3.2												
	2022 M	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023 M	-	-	-	-	-	1	-	-	-	-	-	-	1
Silam, Sabah	2020 M	-	-	-	-	-	-	-	-	-	-	-	-	-
	2021 M	-	-	-	-	-	-	-	-	-	-	-	-	-
	2022 M	-	-	-	1	-	-	-	-	-	-	-	-	1
		2.4												
	2023 M	-	-	-	-	-	-	-	-	-	-	-	-	-
	2024 M	-	-	-	-	-	-	-	-	-	-	-	-	-
Tambunan, Sabah	2020 M	-	-	-	-	-	-	-	-	-	-	-	-	-
	2021 M	-	-	-	-	-	-	-	-	-	-	-	-	-
	2022 M	-	1	-	-	1	-	-	-	-	-	-	-	2
		1.8 - 2.2												
	2023 M	-	-	-	-	1	-	-	-	-	-	-	-	1
	2024 M	-	-	1	-	-	-	-	-	-	-	-	-	1
		1.6												

Jadual 4.5: Bilangan kejadian gempa bumi, Malaysia, 2020-2024 (samb.)

Table 4.5: Number of earthquake incidents, Malaysia, 2020-2024 (cont'd)

Lokasi Location	Tahun Year	Jan.	Feb.	Mac Mar.	Apr.	Mei May	Jun June	Julai July	Ogos Aug.	Sept.	Okt. Oct.	Nov.	Dis. Dec.	Jumlah Total
Tawau, Sabah	2020	-	-	1	-	-	-	-	-	-	1	-	-	2
	M	2.0 - 2.4												
	2021	-	-	-	-	-	-	-	-	-	-	-	2	2
	M	1.8 - 2.0												
	2022	-	-	-	-	-	-	-	-	-	-	-	-	-
	M	-												
Tongod, Sabah	2023	-	-	1	-	-	-	-	-	-	-	1	-	2
	M	2.3 - 2.4												
	2024	-	-	-	1	-	-	-	-	-	-	-	1	2
	M	2.7												
	2020	-	-	-	-	-	-	-	-	-	-	1	-	1
	M	2.8												
Tongod, Sabah	2021	2	-	1	-	-	-	-	-	-	-	-	-	3
	M	2.0 - 2.8												
	2022	1	-	-	-	-	1	-	-	-	-	-	-	2
	M	1.4 - 2.2												
	2023	-	1	-	-	-	-	-	-	-	-	-	1	2
	M	2.5 - 2.6												
Tongod, Sabah	2024	-	-	-	-	-	-	-	1	-	-	-	1	2
	M	2.4 - 2.7												

Nota: M: Magnitud
Note: M: Magnitude

Sumber: Jabatan Meteorologi Malaysia
Source: Malaysia Meteorological Department

Jadual 4.6: Insiden tumpahan minyak di laut, Malaysia, 2020-2024

Table 4.6: Oil spill incidents at sea, Malaysia, 2020-2024

					Bilangan Number
Laut Sea	2020	2021	2022	2023	2024
Jumlah Total	16	7	3	10	16
Selat Melaka Straits of Malacca	6	3	-	3	5
Laut China Selatan South China Sea	8	3	3	6	8
Selat Johor Straits of Johor	2	-	-	1	3
Laut Sulu dan Sulawesi Sulu and Sulawesi Sea	-	1	-	-	-

Sumber: Jabatan Alam Sekitar
Source: Department of Environment

Jadual 4.7: Bilangan insiden tumpahan minyak mengikut punca dan sebab, Malaysia, 2020-2024

Table 4.7: Number of oil spill incidents by source and cause, Malaysia, 2020-2024

Table 4.7: Number of oil spill incidents by source and cause, Malaysia, 2020-2024						Bilangan Number
Punca Source	Sebab Cause	2020	2021	2022	2023	2024
Jumlah Total		16	7	3	10	16
Kapal Vessels	Desludging	-	-	-	-	2
	Letupan dan/ atau kebakaran Explosion and/ or fire	-	-	-	-	-
	Pelanggaran Collision	1	1	-	-	3
	Pelepasan haram Illegal discharging	-	-	-	-	-
	Terkandas Grounding	2	-	-	3	1
	Pemindahan minyak dari kapal ke kapal Ship to ship transfer	-	1	-	2	-
Pelantar minyak Oil platform	Kerosakan mekanikal Mechanical failure	-	1	1	-	-
Pengkalan dan gudang Terminal and depot	Kebocoran injap dan phlanges Leaking valves and phlanges	2	1	1	-	4
	Pembersihan tangki dan 'deballasting' Tank washing and deballasting	-	-	-	-	-
	Pengisian berlebihan Overfilling	-	-	-	-	-
Saluran paip Pipeline	Pecah Rupture	1	-	-	-	-
Lain-lain Others	Tiada maklumat lengkap Insufficient information	10	3	1	5	6

Sumber: Jabatan Alam Sekitar
Source: Department of Environment

Jadual 4.8: Bilangan kemalangan jalan raya dan kecederaan yang dilaporkan mengikut negeri, Malaysia, 2020-2024

Table 4.8: Number of road accidents and casualties reported by state, Malaysia, 2020-2024

Negeri State	Tahun Year	Kemalangan jalan raya Road accidents	Kecederaan Casualties		Jumlah Total
			Kecederaan ¹ Injury	Kematian Death	
Malaysia	2020	418,237	12,602	4,634	17,236
	2021	370,286	18,530	4,539	23,069
	2022	545,585	33,852	6,080	39,932
	2023	599,967	31,597	6,023	37,620
	2024	638,060	32,498	6,469	38,967
Johor	2020	58,207	1,038	697	1,735
	2021	49,559	1,172	614	1,786
	2022	76,028	2,062	852	2,914
	2023	87,604	1,449	972	2,421
	2024	97,466	1,591	1,033	2,624
Kedah	2020	19,651	1,163	354	1,517
	2021	18,414	1,622	406	2,028
	2022	25,547	2,462	518	2,980
	2023	28,130	1,926	550	2,476
	2024	27,756	2,073	528	2,601
Kelantan	2020	9,752	1,892	276	2,168
	2021	7,982	1,818	224	2,042
	2022	12,664	2,949	336	3,285
	2023	13,062	1,758	327	2,085
	2024	13,397	1,562	340	1,902
Melaka	2020	14,543	235	151	386
	2021	13,049	563	136	699
	2022	19,713	1,382	226	1,608
	2023	21,592	860	184	1,044
	2024	23,055	430	244	674
Negeri Sembilan	2020	19,905	1,565	235	1,800
	2021	18,014	1,462	249	1,711
	2022	26,934	1,920	334	2,254
	2023	28,907	1,275	364	1,639
	2024	30,368	1,276	375	1,651
Pahang	2020	17,000	449	356	805
	2021	15,120	610	319	929
	2022	22,517	838	448	1,286
	2023	23,591	647	443	1,090
	2024	24,322	775	464	1,239
Perak	2020	30,669	1,903	491	2,394
	2021	28,148	2,231	575	2,806
	2022	40,281	2,183	703	2,886
	2023	41,659	1,368	641	2,009
	2024	43,638	1,984	669	2,653
Perlis	2020	1,615	199	46	245
	2021	1,593	199	42	241
	2022	2,276	336	63	399
	2023	2,318	513	56	569
	2024	2,517	677	70	747

Jadual 4.8: Bilangan kemalangan jalan raya dan kecederaan yang dilaporkan mengikut negeri, Malaysia, 2020-2024 (samb.)

Table 4.8: Number of road accidents and casualties reported by state, Malaysia, 2020-2024 (cont'd)

Negeri State	Tahun Year	Kemalangan jalan raya Road accidents	Kecederaan Casualties		Jumlah Total
			Kecederaan ¹ Injury	Kematian Death	
Pulau Pinang	2020	35,234	244	287	531
	2021	32,792	4,213	328	4,541
	2022	48,694	13,561	429	13,990
	2023	53,389	17,043	365	17,408
	2024	56,605	16,428	424	16,852
Sabah	2020	12,498	368	214	582
	2021	12,563	365	213	578
	2022	17,623	569	269	838
	2023	19,053	377	248	625
	2024	20,224	666	319	985
Sarawak	2020	16,158	503	315	818
	2021	14,231	554	326	880
	2022	19,508	662	387	1,049
	2023	21,417	477	378	855
	2024	21,733	507	408	915
Selangor	2020	123,230	2,386	805	3,191
	2021	108,564	2,173	742	2,915
	2022	156,815	2,205	1,003	3,208
	2023	173,487	1,549	1,037	2,586
	2024	187,156	1,609	1,117	2,726
Terengganu	2020	9,152	384	238	622
	2021	8,458	452	190	642
	2022	12,084	914	282	1,196
	2023	12,356	621	253	874
	2024	12,456	535	271	806
W.P. Kuala Lumpur	2020	48,796	233	156	389
	2021	40,237	981	167	1,148
	2022	62,428	1,599	212	1,811
	2023	70,733	1,585	186	1,771
	2024	74,443	2,217	200	2,417
W.P. Labuan	2020	408	17	6	23
	2021	387	18	3	21
	2022	564	84	11	95
	2023	569	73	12	85
	2024	604	91	5	96
W.P. Putrajaya	2020	1,419	23	7	30
	2021	1,175	97	5	102
	2022	1,909	126	7	133
	2023	2,100	76	7	83
	2024	2,320	77	2	79

Sumber: Jabatan Siasatan dan Penguatkuasaan Trafik, Polis Diraja Malaysia
Source: Investigation and Enforcement of the Traffic Department, Royal Malaysia Police

Nota: ¹ Kecederaan merujuk kepada kecederaan ringan dan parah
Notes: Injury refer to minor and serious injury

Jadual 4.9: Statistik punca kebakaran, Malaysia, 2020-2024

Table 4.9: Cause of fire statistics, Malaysia, 2020-2024

Kejadian kebakaran <i>Fire incidents</i>	2020	2021	2022	2023	2024
Jumlah <i>Total</i>	38,865	35,902	28,489	34,389	41,149
Elektrik <i>Electricity</i>	1,239	1,232	1,291	1,207	1,562
Puntung rokok <i>Cigarette bud</i>	215	157	110	89	120
Percikan api <i>Fire sparks</i>	138	99	104	138	158
Mercun/ bunga api <i>Firecrackers/ fireworks</i>	7	13	9	22	19
Ubat nyamuk/ lilin/ colok <i>Mosquito coil/ candle/ joss sticks</i>	54	45	53	62	72
Dapur gas/ minyak <i>Gas stove/ kerosene</i>	342	311	326	326	349
Reaksi spontan <i>Spontaneous reaction</i>	73	73	44	39	46
Sengaja dibakar (niat baik) <i>Deliberately set fire (good intention)</i>	1,519	1,105	514	822	1,202
Sengaja dibakar (niat jahat) <i>Deliberately set fire (arson)</i>	129	137	78	68	82
Tidak diketahui <i>Unknown</i>	336	343	240	205	158
Tindak balas kimia <i>Chemical reaction</i>	5	5	4	3	6
Mancis api <i>Matches</i>	82	66	50	66	72
Lain-lain <i>Others</i>	34,726	32,316	25,666	31,342	37,303

Sumber: Kementerian Perumahan dan Kerajaan Tempatan

Source: Ministry of Housing and Local Government

Jadual 4.10: Bilangan kejadian kebakaran mengikut negeri, Malaysia, 2020-2024

Table 4.10: Number of fire incidents by state, Malaysia, 2020-2024

Negeri State	2020	2021	2022	2023	2024
Malaysia	38,865	35,902	28,489	34,389	41,149
Johor	5,066	4,627	3,761	4,320	4,507
Kedah	3,860	2,968	2,191	2,650	3,735
Kelantan	1,559	1,247	1,111	1,820	3,111
Melaka	1,898	1,508	1,196	1,381	1,850
Negeri Sembilan	1,766	1,921	1,416	1,739	1,729
Pahang	1,891	1,715	1,302	1,759	2,106
Perak	3,596	4,105	3,246	3,372	4,025
Perlis	911	509	330	536	773
Pulau Pinang	2,758	2,554	2,062	1,855	2,250
Sabah	2,927	1,655	1,461	2,474	3,649
Sarawak	1,632	1,975	1,644	2,096	2,176
Selangor	7,521	8,133	6,215	6,990	6,680
Terengganu	1,668	1,296	1,019	1,727	2,559
W.P. Kuala Lumpur	1,472	1,498	1,298	1,400	1,556
W.P. Labuan	280	130	171	203	360
W.P. Putrajaya	60	61	66	67	83

Sumber: Kementerian Perumahan dan Kerajaan Tempatan
Source: Ministry of Housing and Local Government

Jadual 4.11: Kes kebakaran mengikut jenis, Malaysia, 2020-2024

Table 4.11: Fire cases by type, Malaysia, 2020-2024

Jenis Type	2020	2021	2022	2023	2024
Jumlah <i>Total</i>	38,865	35,902	28,489	34,389	41,149
Bangunan dan isinya <i>Building and its content</i>	4,599	4,538	4,695	4,932	5,563
Kenderaan <i>Vehicle</i>	3,622	3,328	3,615	3,530	3,906
Mesin <i>Machine</i>	166	109	110	136	126
Alat perkakas <i>Tools</i>	1,419	1,172	1,426	1,460	1,417
Petrol	7	3	6	10	7
Bahan kimia <i>Chemical item</i>	5	5	7	7	6
Gas	504	432	419	551	463
Kapal terbang <i>Aeroplane</i>	1	-	-	1	1
Helikopter <i>Helicopter</i>	-	-	1	-	-
Kapal laut <i>Ship</i>	2	14	9	12	15
Feri <i>Ferry</i>	-	1	2	-	-
Bot <i>Boat</i>	24	11	11	15	13
Kebun/ Ladang <i>Farm</i>	1,125	1,108	344	722	948
Hutan <i>Forest</i>	2,002	1,753	692	1,302	2,164
Belukar/ Lalang <i>Bush/ Weed</i>	12,600	10,945	6,086	9,294	13,182
Sampah <i>Garbage</i>	3,364	3,126	2,474	2,703	2,979
Gerai <i>Stall</i>	100	77	76	63	60
Lain-lain <i>Others</i>	9,325	9,280	8,516	9,651	10,299

Sumber: Kementerian Perumahan dan Kerajaan Tempatan
Source: Ministry of Housing and Local Government

Jadual 4.12: Kes kebakaran mengikut jenis bangunan, Malaysia, 2020-2024

Table 4.12: Fire cases by type of buldings, Malaysia, 2020-2024

Jenis Type	2020	2021	2022	2023	2024
Jumlah <i>Total</i>	4,599	4,538	4,695	4,932	5,563
Kedai <i>Shop</i>	456	440	475	431	470
Kilang <i>Factory</i>	251	251	260	249	257
Gudang <i>Warehouse</i>	16	28	23	25	26
Stor <i>Store</i>	257	291	269	277	332
Bengkel <i>Workshop</i>	78	81	72	79	82
Hotel	25	25	26	27	31
Pusat membeli-belah <i>Shopping centre</i>	23	7	8	14	11
Pejabat <i>Office</i>	102	89	55	80	66
Dewan orang ramai <i>Public hall</i>	9	8	8	7	15
Panggung wayang <i>Cinema</i>	-	1	1	-	1
Kelab/ pub/ bar hiburan <i>Entertainment club/ pub/ bar</i>	10	3	4	7	1
Kedai makan/ restoran <i>Food shop/ restaurant</i>	73	54	53	73	77
Rumah teres <i>Terrace house</i>	640	629	684	827	773
Rumah flat <i>Flat house</i>	168	135	152	155	159
Rumah apartment/ kondominium <i>Apartment/ condominium</i>	146	98	139	154	168
Setinggan <i>Squatters</i>	54	71	60	50	54
Rumah panjang/ tradisional <i>Long/ traditional house</i>	73	56	41	44	40
Masjid/ surau <i>Mosque/ surau</i>	17	16	15	14	15
Tokong <i>Temple</i>	8	22	26	20	18
Kuil <i>Temple</i>	4	5	7	2	9
Gereja <i>Church</i>	1	1	3	2	3
Dapur <i>Kitchen</i>	465	392	353	342	495
Makmal <i>Laboratory</i>	3	4	4	7	3

Jadual 4.12: Kes kebakaran mengikut jenis bangunan, Malaysia, 2020-2024 (samb.)

Table 4.12: Fire cases by type of buldings, Malaysia, 2020-2024 (cont'd)

Jenis Type	2020	2021	2022	2023	2024
Institusi pengajian tinggi awam <i>Public higher education institution</i>	5	9	6	8	7
Institusi pengajian tinggi swasta <i>Private higher education institution</i>	3	2	2	1	-
Sekolah rendah kerajaan <i>Government primary school</i>	14	12	10	20	27
Sekolah rendah swasta <i>Private primary school</i>	2	1	3	1	1
Sekolah menengah kerajaan <i>Government secondary school</i>	19	9	27	15	23
Sekolah menengah swasta <i>Private secondary school</i>	-	-	1	-	1
Pra-sekolah/ tadika kerajaan <i>Government pre-school/ kindergarden</i>	3	3	6	6	3
Pra-sekolah/ tadika swasta <i>Private pre-school/ kindergarden</i>	2	2	1	3	7
Asrama sekolah <i>School hostel</i>	15	4	13	14	11
Asrama pekerja <i>Workers hostel</i>	36	45	45	56	58
Hospital/ klinik awam <i>Public hospital/ clinic</i>	22	17	12	11	14
Hospital/ klinik swasta <i>Private hospital/ clinic</i>	5	10	6	9	5
Rumah kediaman <i>Residential house</i>	1,201	1,368	1,432	1,514	1,518
Premis ladang ternakan <i>Livestock estate premises</i>	9	13	12	12	20
Premis/ hotel bajet <i>Budget hotel/ premises</i>	5	-	2	2	4
Asrama/ rumah tumpangan <i>Hostel/ homestay</i>	11	13	11	22	13
Rumah kedai <i>Shop house</i>	118	83	88	69	70
Pusat tahfiz <i>Tahfiz centre</i>	-	4	12	13	9
Lain-lain <i>Others</i>	250	236	268	270	666

Sumber: Kementerian Perumahan dan Kerajaan Tempatan
Source: Ministry of Housing and Local Government

Jadual 4.13: Bilangan kematian, kecederaan dan anggaran kerugian akibat kebakaran yang dilaporkan mengikut negeri, Malaysia, 2020-2024

Table 4.13: Number of deaths, injuries and estimated losses caused by fire by state, Malaysia, 2020-2024

Negeri State	2020			2021			2022		
	Kematian Death	Kecederaan Injury	Kerugian Loss	Kematian Death	Kecederaan Injury	Kerugian Loss	Kematian Death	Kecederaan Injury	Kerugian Loss
			(RM juta/ millions)			(RM juta/ millions)			(RM juta/ millions)
Malaysia	118	413	2,247.0	79	361	1,762.1	121	400	2,251.4
Johor	16	45	77.3	12	49	71.4	14	62	73.3
Kedah	1	16	244.2	8	29	189.7	12	36	72.2
Kelantan	2	21	31.1	4	14	45.2	3	9	16.9
Melaka	6	19	65.4	2	8	15.3	9	20	23.6
Negeri Sembilan	4	16	52.5	5	22	39.7	2	20	94.2
Pahang	5	33	185.4	2	14	65.9	5	15	31.2
Perak	16	49	57.0	9	42	70.4	14	43	240.4
Perlis	3	1	1.9	1	-	1.6	-	1	2.9
Pulau Pinang	14	44	101.1	3	27	205.2	3	27	1,045.8
Sabah	17	44	941.9	9	29	271.7	15	40	117.6
Sarawak	13	16	63.7	2	23	309.5	22	39	74.9
Selangor	17	66	356.9	14	58	385.2	16	50	363.3
Terengganu	3	9	11.4	2	12	14.0	1	9	15.3
W.P. Kuala Lumpur	1	32	55.1	5	28	71.0	5	24	44.2
W.P. Labuan	-	2	1.6	1	5	4.2	-	2	3.2
W.P. Putrajaya	-	-	0.4	-	1	2.1	-	3	32.2

Jadual 4.13: Bilangan kematian, kecederaan dan anggaran kerugian akibat kebakaran yang dilaporkan mengikut negeri, Malaysia, 2020-2024 (samb.)

Table 4.13: Number of deaths, injuries and estimated losses caused by fire by state, Malaysia, 2020-2024 (cont'd)

Negeri State	2023			2024		
	Kematian Death	Kecederaan Injury	Kerugian Loss (RM juta/ millions)	Kematian Death	Kecederaan Injury	Kerugian Loss (RM juta/ millions)
Malaysia	115	380	2,612.9	111	483	1,559.3
Johor	16	71	134.7	12	61	187.9
Kedah	8	34	60.9	2	27	129.5
Kelantan	5	19	107	2	25	32.7
Melaka	3	10	49.5	5	25	25.7
Negeri Sembilan	6	22	102.2	5	25	59.3
Pahang	8	18	300.7	10	38	141.2
Perak	16	42	135.4	15	37	112.9
Perlis	1	-	2.4	-	8	4.2
Pulau Pinang	5	20	70.0	4	32	46.1
Sabah	11	31	489.4	22	40	131.4
Sarawak	11	33	163.7	11	51	199.9
Selangor	21	53	901.6	17	62	383.1
Terengganu	1	8	22.6	-	9	22.8
W.P. Kuala Lumpur	3	15	69.3	5	37	78.8
W.P. Labuan	-	1	1.1	1	4	3.0
W.P. Putrajaya	-	3	2.3	-	2	0.8

Nota: Hasil tambah mungkin berbeza kerana pembundaraan
Notes: The added total may differ due to rounding

Sumber: Kementerian Perumahan dan Kerajaan Tempatan
Source: Ministry of Housing and Local Government

Jadual 4.14: Statistik nilai kerugian banjir mengikut negeri, Malaysia, 2022 dan 2023

Table 4.14: Statistics on value of flood losses by state, Malaysia, 2022 and 2023

Negeri State	*Bilangan tempat kediaman Number of living quarters	Nilai kerugian banjir Value of flood losses					
		(A) Tempat Kediaman Living Quarters (RM '000)		(B) Kenderaan Vehicles (RM '000)		(C) Premis Perniagaan Business Premises (RM '000)	
		2022	2023	2022	2023	2022	2023
		2022	2023	2022	2023	2022	2023
Malaysia	8,046,946	168,258	372,232	22,327	17,298	53,197	54,059
Johor	1,017,727	121,906	21,280	15,937	2,072	29,775	3,434
Kedah	528,228	265	54,013	11	2,095	-	4,291
Kelantan	363,251	15,432	139,015	431	3,984	19,810	27,066
Melaka	267,074	541	1,048	58	82	-	63
Negeri Sembilan	315,497	935	2,922	12	77	-	62
Pahang	401,534	6,659	10,961	1,242	892	98	393
Pulau Pinang	495,347	43	887	8	73	-	34
Perak	672,855	497	12,172	120	720	102	637
Perlis	80,850	60	530	6	203	-	248
Selangor	1,836,410	881	6,629	1,789	271	-	-
Terengganu	282,373	9,714	103,128	1,057	5,814	2,914	16,427
Sabah	594,163	10,997	17,318	1,631	688	481	1,237
Sarawak	618,108	329	2,199	25	192	18	168
W.P. Kuala Lumpur	573,529	-	61	-	125	-	-
W.P. Labuan	-	-	69	-	-	-	-
W.P. Putrajaya	-	-	-	-	10	-	-

Jadual 4.14: Statistik nilai kerugian banjir mengikut negeri, Malaysia, 2022 dan 2023 (samb.)

Table 4.14: Statistics on value of flood losses by state, Malaysia, 2022 and 2023 (cont'd)

Negeri State	Nilai kerugian banjir Value of flood losses						Jumlah kerugian Total loss (RM '000)	
	(D) Pembuatan Manufacturing (RM '000)		(E) Pertanian Agriculture (RM '000)		(F) Infrastruktur Infrastructure (RM '000)			
	2022	2023	2022	2023	2022	2023	2022	2023
Malaysia	10,260	1,163	120,629	185,222	380,742	303,380	755,413	933,354
Johor	10,260	-	25,239	2,433	71,845	29,748	274,962	58,968
Kedah	-	-	416	118,210	20,746	15,053	21,438	193,662
Kelantan	-	1,091	52,547	43,788	51,459	48,089	139,678	263,033
Melaka	-	-	208	472	5,000	7,249	5,806	8,913
Negeri Sembilan	-	-	3,024	1,210	7,580	16,181	11,551	20,451
Pahang	-	-	3,369	8,807	63,424	16,220	74,793	37,273
Pulau Pinang	-	-	100	63	8,131	7,661	8,281	8,718
Perak	-	-	768	312	45,368	43,398	46,854	57,239
Perlis	-	-	-	176	4,664	3,988	4,730	5,144
Selangor	-	-	3,284	1,887	7,957	13,788	13,911	22,576
Terengganu	-	72	31,282	6,661	32,711	49,855	77,678	181,957
Sabah	-	-	196	684	12,835	16,914	26,140	36,840
Sarawak	-	-	197	518	29,215	24,280	29,784	27,357
W.P. Kuala Lumpur	-	-	-	-	15,562	7,960	15,562	8,146
W.P. Labuan	-	-	-	-	3,443	2,300	3,443	2,369
W.P. Putrajaya	-	-	-	-	800	697	800	707

Nota: * Bilangan Tempat Kediaman merujuk kepada data Banci Penduduk dan Perumahan Malaysia 2020.

Notes: Number of Living Quarters refers to the data of Population and Housing Census Malaysia 2020.

"-" Tidak terkesan banjir
Not affected by the flood

Data Data tahun 2023 tidak termasuk Kementerian Kemajuan Desa dan Wilayah
Data for the year 2023 not include Ministry of Rural and Regional Development

Jadual 4.15: Taburan kawasan hakisan pantai di Malaysia, 2024

Table 4.15: Distribution of coastal erosion areas in Malaysia, 2024

Negeri State	Pantai yang mengalami hakisan mengikut kategori								%
	Coastal erode by category								
	Kategori 1		Kategori 2		Kategori 3		Jumlah hakisan (km) Total erosion		
	Category 1		Category 2		Category 3				
	Bil. kawasan	Panjang agregat (km)	Bil. kawasan	Panjang agregat (km)	Bil. kawasan	Panjang agregat (km)			
Jumlah (km) Total	No. of area	Aggregate length	No. of area	Aggregate length	No. of area	Aggregate length			
Malaysia	8,840.00	44	55.4	309	375.9	2,344	916.3	1,347.60	15.2
Johor	813.6	-	-	30	38.1	42	26.6	64.7	8.0
Kedah	639.8	4	1.9	28	13.6	90	11.3	26.8	4.2
Kelantan	179.5	2	2	2	2.5	43	15.3	19.8	11.0
Melaka	120.5	1	0.2	6	1.7	3	1.8	3.7	3.1
Negeri Sembilan	65	6	5.5	9	4.1	2	0.2	9.8	15.1
Pahang	378.4	2	1.5	14	16.9	58	43.4	61.8	16.3
Perak	397.5	1	0.3	21	33.6	105	61.2	95.1	23.9
Perlis	26.4	-	-	-	-	2	0.1	0.1	0.4
Pulau Pinang	215.6	7	4.7	13	5	31	6.6	16.3	7.6
Sabah	3,752.90	3	3	63	79.1	1,120	347.2	429.3	11.4
Sarawak	1,234.10	7	18.6	78	144.8	566	329.1	492.5	39.9
Selangor	492.1	2	4.8	16	18.6	156	51.2	74.6	15.2
Terengganu	443.1	8	12.3	20	15.4	115	21.0	48.7	11.0
W.P. Labuan	81.5	1	0.6	9	2.5	11	1.3	4.4	5.4

Sumber: Jabatan Pengairan dan Saliran
Source: Department of Irrigation and Drainage

Nota/ Notes:

Kategori 1: Pengunduran garis pantai yang cepat dengan kadar melebihi 4 meter/ tahun umumnya di kawasan dengan penduduk yang agak padat bersama aktiviti komersial/industri yang mendapat perkhidmatan infrastruktur dan kemudahan awam.

Category 1: Fast retreating coastline at the rate of more than 4 metre/ year with generally fairly dense human settlement, with some commercial/ industrial activities being served by significant public infrastructure and facilities.

Kategori 2: Pengunduran garis pantai dengan kadar lebih dari 1 meter/ tahun tetapi kurang dari 4 meter/tahun umumnya di kawasan berpenduduk tidak padat dengan sedikit aktiviti pertanian yang mendapat perkhidmatan infrastruktur dan kemudahan awam yang kurang sempurna.

Category 2: Retreating coastline at the rate of between more than 1 metre/ year but less than 4m/ year with generally sparsely-populated area, with some agricultural activities being served by relatively minor public infrastructure and facilities

Kategori 3: Pengunduran garis pantai dengan kadar kurang dari 1 meter/ tahun umumnya di kawasan tanpa penduduk dengan aktiviti pertanian yang minimum yang tidak mendapat perkhidmatan infrastruktur dan kemudahan awam.

Category 3: Slowly retreating coastline of less than 1 metre/ year with generally no human settlement and minimal agricultural activities, and not served by public infrastructure and facilities.

Berdasarkan National Coastal Erosion Study for Malaysia (2015)
Based on National Coastal Erosion Study for Malaysia (2015)

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KOMPONEN 5 ***COMPONENT***

**PENEMPATAN PENDUDUK DAN
KESIHATAN PERSEKITARAN**

***HUMAN SETTLEMENTS AND
ENVIRONMENTAL HEALTH***



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Jadual 5.1: Anggaran penduduk pertengahan tahun, Malaysia, 2021-2025

Table 5.1: Mid-year population estimates, Malaysia, 2021-2025

Negeri State	2021	2022	2023	2024	2025 ^P	Kadar pertumbuhan penduduk tahunan Annual population growth rate (%)	
	('000)					2023/2024	2024/2025
Malaysia	32,576.3	32,698.1	33,401.8	34,052.1	34,231.7	1.9	0.5
Johor	4,020.0	4,028.3	4,107.2	4,184.4	4,205.9	1.9	0.5
Kedah	2,151.7	2,163.1	2,189.3	2,217.1	2,228.0	1.3	0.5
Kelantan	1,812.3	1,830.6	1,859.8	1,887.9	1,907.7	1.5	1.0
Melaka	1,004.5	1,008.6	1,028.3	1,046.7	1,052.5	1.8	0.6
Negeri Sembilan	1,204.2	1,207.9	1,224.9	1,239.5	1,244.6	1.2	0.4
Pahang	1,601.5	1,614.3	1,643.2	1,667.7	1,678.2	1.5	0.6
Perak	2,515.8	2,514.4	2,541.2	2,569.4	2,574.9	1.1	0.2
Perlis	287.6	289.8	293.1	296.8	297.8	1.3	0.3
Pulau Pinang	1,740.0	1,740.9	1,772.6	1,800.5	1,803.3	1.6	0.2
Sabah	3,412.6	3,414.9	3,596.7	3,742.0	3,759.6	4.0	0.5
Sarawak	2,465.6	2,473.5	2,502.3	2,517.5	2,529.8	0.6	0.5
Selangor	7,014.7	7,050.3	7,209.7	7,362.7	7,406.8	2.1	0.6
Terengganu	1,170.7	1,186.6	1,210.0	1,231.5	1,246.9	1.8	1.2
W.P. Kuala Lumpur	1,964.0	1,961.2	2,005.7	2,067.5	2,074.1	3.0	0.3
W.P. Labuan	96.0	96.9	99.0	100.8	100.9	1.8	0.1
W.P. Putrajaya	115.2	117.0	118.8	120.3	120.8	1.2	0.4

Nota/ Notes:

Berdasarkan Anggaran Penduduk Pertengahan Tahun berasaskan data Banci Penduduk dan Perumahan 2020
Mid-Year Population Estimates based on Population and Housing Census of Malaysia 2020

^P Permulaan/ Preliminary

Hasil tambah mungkin berbeza kerana pembundaran
The added total may differ due to rounding

Jadual 5.2: Kepadatan penduduk mengikut negeri, Malaysia, 2021-2025

Table 5.2: Population density by state, Malaysia, 2021-2025

Bilangan orang bagi setiap km²
Number of persons per km²

Negeri State	2021	2022	2023	2024	2025 ^P
Malaysia	99	99	101	103	104
Johor	210	210	214	218	219
Kedah	227	227	230	233	234
Kelantan	120	122	124	126	127
Melaka	586	575	586	596	600
Negeri Sembilan	181	180	183	185	185
Pahang	45	45	45	46	46
Perak	119	119	120	122	122
Perlis	350	355	359	364	365
Pulau Pinang	1,658	1,689	1,719	1,746	1,749
Sabah	46	46	49	50	51
Sarawak	20	20	20	20	20
Selangor	883	888	908	927	933
Terengganu	90	92	93	95	96
W.P. Kuala Lumpur	8,106	8,080	8,264	8,518	8,546
W.P. Labuan	1,048	1,057	1,297	1,100	1,102
W.P. Putrajaya	2,338	2,373	2,008	2,439	2,450

Nota/ Notes:

Berdasarkan Anggaran Penduduk Pertengahan Tahun berasaskan data Banci Penduduk dan Perumahan 2020
Mid-Year Population Estimates based on Population and Housing Census of Malaysia 2020

^P Permulaan/ Preliminary

Hasil tambah mungkin berbeza kerana pembundaran
The added total may differ due to rounding

Jadual 5.3: Penduduk mengikut kumpulan umur dan jantina, Malaysia, 2025^p

Table 5.3: Population by age group and sex, Malaysia, 2025^p

Kumpulan umur Age group	Jumlah Total		Lelaki Male		Perempuan Female	
	Bilangan ('000)		Bilangan ('000)		Bilangan ('000)	
	Number	%	Number	%	Number	%
Jumlah Total	34,231.7	100.0	17,957.6	100.0	16,274.1	100.0
0 – 4	2,306.6	6.7	1,192.4	6.6	1,114.2	6.8
5 – 9	2,516.1	7.4	1,284.1	7.2	1,232.0	7.6
10 – 14	2,579.4	7.5	1,335.1	7.4	1,244.3	7.6
15 – 19	2,705.3	7.9	1,415.9	7.9	1,289.3	7.9
20 – 24	3,155.7	9.2	1,730.5	9.6	1,425.1	8.8
25 – 29	3,086.9	9.0	1,731.7	9.6	1,355.2	8.3
30 – 34	2,889.3	8.4	1,593.6	8.9	1,295.7	8.0
35 – 39	2,849.4	8.3	1,516.8	8.4	1,332.6	8.2
40 – 44	2,660.5	7.8	1,400.0	7.8	1,260.5	7.7
45 – 49	2,104.7	6.1	1,100.0	6.1	1,004.6	6.2
50 – 54	1,759.2	5.1	897.6	5.0	861.6	5.3
55 – 59	1,506.0	4.4	751.0	4.2	755.0	4.6
60 – 64	1,366.2	4.0	684.3	3.8	681.9	4.2
65 – 69	1,090.4	3.2	531.7	3.0	558.7	3.4
70 – 74	786.4	2.3	381.0	2.1	405.4	2.5
75 +	869.8	2.5	411.8	2.3	458.0	2.8

Nota: Berdasarkan Anggaran Penduduk Pertengahan Tahun berdasarkan data Banci Penduduk dan Perumahan 2020

Note: Mid-Year Population Estimates based on Population and Housing Census of Malaysia 2020

^p **Permulaan/ Preliminary**

Hasil tambah mungkin berbeza kerana pembundaran

The added total may differ due to rounding

Jadual 5.4: Penduduk dengan air paip yang dirawat mengikut negeri dan strata, Malaysia, 2021-2024

Table 5.4: Population with treated piped water by state and strata, Malaysia, 2021-2024

Negeri State	2021			2022			2023			2024		
	Bandar	Luar bandar	Purata negeri	Bandar	Luar bandar	Purata negeri	Bandar	Luar bandar	Purata negeri	Bandar	Luar bandar	Purata negeri
	Urban	Rural	State average	Urban	Rural	State average	Urban	Rural	State average	Urban	Rural	State average
%												
Malaysia	97.4	91.9	94.7	97.4	92.3	94.9	97.4	93.1	95.2	97.3	93.2	95.4
Johor	100.0	99.8	99.9	100.0	99.8	99.9	100.0	99.8	99.9	100.0	99.8	99.9
Kedah	100.0	96.5	98.3	100.0	96.5	98.3	100.0	96.5	98.3	100.0	96.5	98.3
Kelantan ¹	65.4	80.8	73.1	65.8	82.0	73.9	65.8	83.1	74.5	65.2	81.9	73.5
Melaka	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Negeri Sembilan	100.0	99.8	99.9	100.0	99.8	99.9	100.0	99.8	99.9	100.0	99.8	99.9
Pahang	100.0	96.0	98.0	100.0	96.0	98.0	100.0	96.0	98.0	100.0	96.0	98.0
Perak	100.0	99.2	99.6	100.0	99.2	99.6	100.0	99.2	99.6	100.0	99.2	99.6
Perlis	100.0	99.0	99.5	100.0	99.0	99.5	100.0	99.0	99.5	100.0	99.0	99.5
Pulau Pinang	100.0	99.8	99.9	100.0	99.8	99.9	100.0	99.8	99.9	100.0	99.8	99.9
Sabah	100.0	56.0	78.0	100.0	61.0	80.5	100.0	69.0	83.0	99.0	70.5	85.4
Sarawak ²	99.0	66.9	83.6	99.0	67.2	83.7	99.0	68.2	84.3	99.0	70.5	85.4
Selangor ³	100.0	99.5	99.8	100.0	99.5	99.8	100.0	99.5	99.8	100.0	99.5	99.8
Terengganu	99.1	92.9	96.0	99.1	92.9	96.0	99.1	92.9	96.0	99.1	92.9	96.0
W.P. Labuan	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Sumber: Kementerian Peralihan Tenaga dan Transformasi Air, Suruhanjaya Perkhidmatan Air Negara

Source: Ministry of Energy Transition and Water Transformation, National Water Services Commission

Nota/ Notes:

¹ Peratusan populasi yang mendapat liputan bekalan air bagi Kelantan merujuk kepada peratusan populasi yang memiliki sambungan terhadap sistem bekalan air. Peratusan premis yang memiliki penyambungan adalah rendah walaupun terdapat akses terhadap sistem bekalan air kerana masih ramai isi rumah yang memilih untuk menggunakan sumber air alternatif iaitu air bawah tanah. Bagi negeri-negeri lain, liputan bekalan air adalah berdasarkan peratusan populasi yang mempunyai akses terhadap sistem bekalan air awam

Kelantan's percentage of population served refers to percentage of population with connected water supply. The percentage of premises with connected services is low although there is accessibility; many households still using alternative sources i.e. ground water. For other states, population served based on percentage of population that have access to the public water supply system

² Termasuk LAKU Management Sdn. Bhd. (Bintulu, Miri & Limbang), Lembaga Air Sibu, Lembaga Air Kuching dan Jabatan Bekalan Air Luar Bandar (JBALB), Sarawak. Angka bagi kawasan luar bandar Sarawak tidak termasuk bekalan air separa terawat yang dibekalkan oleh agensi lain seperti Kementerian Kemajuan Luar Bandar dan Wilayah, Kementerian Kesihatan dan bekalan air persendirian

Includes LAKU Management Sdn. Bhd. (Bintulu, Miri & Limbang), Sibu Water Board, Kuching Water Board and Sarawak Rural Water Supply Department. Figures for the rural areas of Sarawak exclude partly treated portable water supplied by the other agencies such as Ministry of Rural and Regional Development, Ministry of Health and private water supply

³ Termasuk W.P. Kuala Lumpur dan W.P. Putrajaya

Includes W.P. Kuala Lumpur and W.P. Putrajaya

Jadual 5.5: Peratus isi rumah yang mempunyai kemudahan sanitasi mengikut strata, Malaysia, 2014, 2016 dan 2019

Table 5.5: Percentage of households using improved sanitation facilities by strata, Malaysia, 2014, 2016 and 2019

Tahun Year	Penduduk yang mempunyai kemudahan sanitasi Population using improved sanitation facilities		
	Jumlah Total	Bandar Urban	Luar bandar Rural
	(%)	(%)	(%)
2014	99.5	99.7	98.5
2016	99.7	99.8	99.1
2019	99.7	99.9	98.9

Jadual 5.6: Kadar tarif air bagi domestik, Malaysia, 2024

Table 5.6 : Water tariff rates for domestic, Malaysia, 2024

RM/m³

Negeri	Semakan tarif terakhir	Purata tarif air <i>Average water tariff</i>		
<i>State</i>	<i>Last tariff review</i>	20m ³ pertama <i>first 20m³</i>	30m ³ pertama <i>first 30m³</i>	35m ³ pertama <i>first 35m³</i>
Purata negara <i>National average</i>				
Johor	2024	1.05	1.48	1.61
Kedah	2024	0.75	0.93	0.99
Kelantan	2024	0.68	0.87	0.93
Melaka	2024	0.87	1.09	1.15
Negeri Sembilan	2024	0.71	0.84	0.87
Pahang	2024	0.78	0.98	1.04
Perak	2024	0.75	0.86	0.89
Perlis	2024	0.72	0.85	0.89
Pulau Pinang	2024	0.62	0.80	0.86
Sabah	2020	0.60	1.10	-
Sarawak ¹	1992	0.54	0.60	0.62
Sarawak ²	1995	0.51	0.55	0.56
Sarawak ³	1984	0.49	0.55	0.56
Selangor	2024	0.65	0.87	0.94
Terengganu	2024	0.58	0.66	0.69
W.P. Labuan	2024	0.92	1.12	1.18

Sumber: Kementerian Peralihan Tenaga dan Transformasi Air, Suruhanjaya Perkhidmatan Air Negara
Source: Ministry of Energy Transition and Water Transformation, National Water Services Commission

Nota: ¹Termasuk Sibü, Kuching, Sri Aman, Limbang, Sarikei, Kapit, Miri
Notes: Includes Sibü, Kuching, Sri Aman, Limbang, Sarikei, Kapit, Miri

²Termasuk Bintulu
Includes Bintulu

³Bahagian lain di Sarawak
Other parts of Sarawak

Jadual 5.7: Kadar tarif air bagi industri, Malaysia, 2024

Table 5.7 : Water tariff rates for industry, Malaysia, 2024

RM/m ³				
Negeri State	Semakan tarif terakhir Last tariff review	Purata tarif air Average water tariff		
		80m ³ pertama first 80m ³	120m ³ pertama first 120m ³	500m ³ pertama first 500m ³
Purata negara National average				
Johor	2024	3.38	3.43	3.52
Kedah	2024	1.98	2.03	2.12
Kelantan	2024	2.17	2.21	2.26
Melaka	2024	2.50	2.51	2.52
Negeri Sembilan	2024	2.42	2.54	2.73
Pahang	2024	2.05	2.09	2.16
Perak	2024	1.61	1.64	1.69
Perlis	2024	1.63	1.66	1.71
Pulau Pinang	2024	1.91	2.00	2.13
Sabah	2020	1.60	2.00	-
Sarawak ¹	1992	1.26	1.28	1.32
Sarawak ²	1995	1.17	1.18	1.20
Sarawak ³	1984	1.12	1.15	1.19
Selangor	2024	2.84	2.87	2.92
Terengganu	2024	1.31	1.36	1.45
W.P. Labuan	2024	2.39	2.43	2.50

Sumber: Kementerian Peralihan Tenaga dan Transformasi Air,
Suruhanjaya Perkhidmatan Air Negara

Source: Ministry of Energy Transition and Water Transformation,
National Water Services Commission

Nota: ¹ Termasuk Sibul, Kuching, Sri Aman, Limbang, Sarikei, Kapit, Miri
Notes: Includes Sibul, Kuching, Sri Aman, Limbang, Sarikei, Kapit, Miri

² Termasuk Bintulu
Includes Bintulu

³ Bahagian lain di Sarawak
Other parts of Sarawak

Jadual 5.8: Peratus isi rumah dengan kemudahan bekalan elektrik mengikut negeri dan strata, Malaysia, 2022

Table 5.8: Percentage of households with the accessibility to electricity supply by state and strata, Malaysia, 2022

Negeri State	Kemudahan bekalan elektrik Accessibility to electricity supply		
	Jumlah Total	Bandar Urban	Luar bandar Rural
Malaysia	99.7	99.9	99.0
Johor	100.0	100.0	100.0
Kedah	100.0	100.0	100.0
Kelantan	100.0	100.0	100.0
Melaka	100.0	100.0	100.0
Negeri Sembilan	100.0	100.0	100.0
Pahang	99.5	100.0	98.9
Pulau Pinang	100.0	100.0	100.0
Perak	100.0	100.0	99.9
Perlis	100.0	100.0	100.0
Selangor	100.0	100.0	100.0
Terengganu	100.0	100.0	100.0
Sabah	99.0	99.8	97.7
Sarawak	97.8	99.3	95.6
W.P. Kuala Lumpur	100.0	100.0	n.a.
W.P. Labuan	100.0	100.0	100.0
W.P. Putrajaya	100.0	100.0	n.a.

Nota: Berdasarkan Laporan Survei Kemudahan Asas 2022

Notes: Based on Basic Amenities Survey Report 2022

Hasil tambah mungkin berbeza kerana pembundaran

The added total may differ due to rounding

Jadual 5.9a: Tarif elektrik, Semenanjung Malaysia

Table 5.9a: Electricity tariff, Peninsular Malaysia

Kategori tarif Tariff category	Unit	Kadar semasa Existing rates (1 Jun 2011)	Kadar baru New rates (1 Januari 2014)
1. Tarif A -Tarif Kediaman <i>Tariff A - Domestic Tariff</i>			
200 kWj pertama (1 - 200 kWj) sebulan For the first 200 kWh (1 - 200 kWh) per month	sen/ kWj cent/ kWh	21.80	
100 kWj berikutnya (201 - 300 kWj) sebulan For the next 100 kWh (201 - 300 kWh) per month	sen/ kWj cent/ kWh	33.40	
100 kWj berikutnya (301 - 400 kWj) sebulan For the next 100 kWh (301 - 400 kWh) per month	sen/ kWj cent/ kWh	40.00	
100 kWj berikutnya (401 - 500 kWj) sebulan For the next 100 kWh (401 - 500 kWh) per month	sen/ kWj cent/ kWh	40.20	
100 kWj berikutnya (501 - 600 kWj) sebulan For the next 100 kWh (501 - 600 kWh) per month	sen/ kWj cent/ kWh	41.60	
100 kWj berikutnya (601 - 700 kWj) sebulan For the next 100 kWh (601 - 700 kWh) per month	sen/ kWj cent/ kWh	42.60	
100 kWj berikutnya (701 - 800 kWj) sebulan For the next 100 kWh (701 - 800 kWh) per month	sen/ kWj cent/ kWh	43.70	
100 kWj berikutnya (801 - 900 kWj) sebulan For the next 100 kWh (801 - 900 kWh) per month	sen/ kWj cent/ kWh	45.30	
Setiap kWj berikutnya (901 kWj ke atas) sebulan For the next kWh (901 kWh onwards) per month	sen/ kWj cent/ kWh	45.40	
Caj minimum bulanan ialah The minimum monthly charge is	RM	3.00	
Struktur baru <i>New structure</i>			
200 kWj pertama (1 - 200 kWj) sebulan For the first 200 kWh (1 - 200 kWh) per month	sen/ kWj cent/ kWh		21.80
100 kWj berikutnya (201 - 300 kWj) sebulan For the next 100 kWh (201 - 300 kWh) per month	sen/ kWj cent/ kWh		33.40
300 kWj berikutnya (301 - 600 kWj) sebulan For the next 300 kWh (301 - 600 kWh) per month	sen/ kWj cent/ kWh		51.60
300 kWj berikutnya (601 - 900 kWj) sebulan For the next 300 kWh (601 - 900 kWh) per month	sen/ kWj cent/ kWh		54.60
Setiap kWj berikutnya (901 kWj ke atas) sebulan For the next kWh (901 kWh onwards) per month	sen/ kWj cent/ kWh		57.10
Caj minimum bulanan ialah The minimum monthly charge is	RM		3.00
2. Tarif B - Tarif perdagangan voltan rendah <i>Tariff B - Low voltage commercial tariff</i>			
Bagi jumlah penggunaan keseluruhan di antara 0 - 200 kWj sebulan: For overall monthly consumption between 0 - 200 kWh per month:			
Bagi semua kWj For all kWh	sen/ kWj cent/ kWh	39.30	
Caj minimum bulanan ialah The minimum monthly charge is	RM	7.20	

Jadual 5.9a: Tarif elektrik, Semenanjung Malaysia (samb.)

Table 5.9a: Electricity tariff, Peninsular Malaysia (cont'd)

Kategori tarif Tariff category	Unit	Kadar semasa Existing rates (1 Jun 2011)	Kadar baru New rates (1 Januari 2014)
Bagi jumlah penggunaan keseluruhan melebihi 200 kWj sebulan: <i>For overall monthly consumption more than 200 kWh per month:</i>			
Bagi semua kWj (dari 1 kWj ke atas) <i>For all kWh (from 1kWh and above)</i>	sen/ kWj cent/ kWh	43.00	
Caj minimum bulanan ialah <i>The Minimum Monthly Charge is</i>	RM	7.20	
Struktur Baru <i>New Structure</i>			
200 kWj pertama (1 - 200 kWj) sebulan <i>For the first 200 kWh (1 - 200 kWh) per month</i>	sen/ kWj cent/ kWh		43.50
Setiap kWj berikutnya (201 kWj ke atas) sebulan <i>For the next kWh (201 kWh onwards) per month</i>	sen/ kWj cent/ kWh		50.90
Caj minimum bulanan ialah <i>The minimum monthly charge is</i>	RM		7.20
3. Tarif C1 - Tarif perdagangan am voltan sederhana <i>Tariff C1 - Medium voltage general commercial tariff</i>			
Bagi setiap kilowatt kehendak maksimum sebulan <i>For each kilowatt of maximum demand per month</i>	RM/kW	25.90	30.30
Bagi semua kWj <i>For all kWh</i>	sen/ kWj cent/ kWh	31.20	36.50
Caj minimum bulanan ialah <i>The minimum monthly charge is</i>	RM	600.00	600.00
4. Tarif C2 - Tarif perdagangan puncak/luar puncak voltan sederhana <i>Tariff C2 - Medium voltage peak/off-peak commercial tariff</i>			
Bagi setiap kilowatt kehendak maksimum sebulan dalam tempoh puncak <i>For each kilowatt of maximum demand per month during the peak period</i>	RM/kW	38.60	45.10
Bagi semua kWj dalam tempoh puncak <i>For all kWh during the peak period</i>	sen/ kWj cent/ kWh	31.20	36.50
Bagi semua kWj dalam tempoh luar puncak <i>For all kWh during the off-peak period</i>	sen/ kWj cent/ kWh	19.20	22.40
Caj minimum bulanan ialah <i>The minimum monthly charge is</i>	RM	600.00	600.00
5. Tarif D - Tarif perindustrian voltan rendah <i>Tariff D - Low voltage industrial tariff</i>			
Bagi jumlah penggunaan keseluruhan di antara 0 - 200 kWj sebulan: <i>For overall monthly consumption between 0-200 kWh per month:</i>			
Bagi semua kWj <i>For all kWh</i>	sen/ kWj cent/ kWh	34.50	
Caj minimum bulanan ialah <i>The minimum monthly charge is</i>	RM	7.20	
Bagi jumlah penggunaan keseluruhan melebihi 200 kWj sebulan: <i>For overall monthly consumption more than 200 kWh per month:</i>			
Bagi semua kWj (dan 1kWj ke atas) <i>For all kWh (from 1kWh and above)</i>	sen/ kWj cent/ kWh	37.70	
Caj minimum bulanan ialah <i>The minimum monthly charge is</i>	RM	7.20	

Jadual 5.9a: Tarif elektrik, Semenanjung Malaysia (samb.)

Table 5.9a: Electricity tariff, Peninsular Malaysia (cont'd)

Kategori tarif Tariff category	Unit	Kadar semasa Existing rates (1 Jun 2011)	Kadar baru New rates (1 Januari 2014)
Struktur baru New structure			
200 kWj pertama (1 - 200 kWj) sebulan For the first 200 kWh (1 - 200 kWh) per month	sen/ kWj cent/ kWh		38.00
Setiap kWj berikutnya (201kWj ke atas) sebulan For the next kWh (201 kWh onwards) per month	sen/ kWj cent/ kWh		44.10
Caj minimum bulanan ialah The minimum monthly charge is	RM		7.20
Tarif Ds - Tarif perindustrian khas (untuk pengguna yang layak sahaja) Tariff Ds - Special industrial tariff (for consumers who qualify only)			
Bagi semua kWj For all kWh	sen/ kWj cent/ kWh	35.90	42.70
Caj minimum bulanan ialah The minimum monthly charge is	RM	7.20	7.20
6. Tarif E1 - Tarif perindustrian am voltan sederhana Tariff E1 - Medium voltage general industrial tariff			
Bagi setiap kilowatt kehendak maksimum sebulan For each kilowatt of maximum demand per month	RM/kW	25.30	29.60
Bagi semua kWj For all kWh	sen/ kWj cent/ kWh	28.80	33.70
Caj minimum bulanan ialah The minimum monthly charge is	RM	600.00	600.00
Tarif E1s - Tarif perindustrian khas (untuk pengguna yang layak sahaja) Tariff E1s - Special industrial tariff (for consumers who qualify only)			
Bagi setiap kilowatt kehendak maksimum sebulan For each kilowatt of maximum demand per month	RM/kW	19.90	23.70
Bagi semua kWj For all kWh	sen/ kWj cent/ kWh	28.30	33.60
Caj minimum bulanan ialah The minimum monthly charge is	RM	600.00	600.00
7. Tarif E2 - Tarif perindustrian puncak/luar puncak voltan sederhana Tariff E2 - Medium voltage peak/off-peak industrial tariff			
Bagi setiap kilowatt kehendak maksimum sebulan dalam tempoh puncak For each kilowatt of maximum demand per month during the peak period	RM/kW	31.70	37.00
Bagi semua kWj dalam tempoh puncak For all kWh during the peak period	sen/ kWj cent/ kWh	30.40	35.50
Bagi semua kWj dalam tempoh luar puncak For all kWh during the off-peak period	sen/ kWj cent/ kWh	18.70	21.90
Caj minimum bulanan ialah The minimum monthly charge is	RM	600.00	600.00
Tarif E2s - Tarif perindustrian khas (untuk pengguna yang layak sahaja) Tariff E2s - Special industrial tariff (for consumers who qualify only)			
Bagi setiap kilowatt kehendak maksimum sebulan dalam tempoh puncak For each kilowatt of maximum demand per month during the peak period	RM/kW	27.70	32.90
Bagi semua kWj dalam tempoh puncak For all kWh during the peak period	sen/ kWj cent/ kWh	28.30	33.60
Bagi semua kWj dalam tempoh luar puncak For all kWh during the off-peak period	sen/ kWj cent/ kWh	16.10	19.10
Caj minimum bulanan ialah The minimum monthly charge is	RM	600.00	600.00

Jadual 5.9a: Tarif elektrik, Semenanjung Malaysia (samb.)

Table 5.9a: Electricity tariff, Peninsular Malaysia (cont'd)

Kategori tarif <i>Tariff category</i>	Unit	Kadar semasa <i>Existing rates</i> (1 Jun 2011)	Kadar baru <i>New rates</i> (1 Januari 2014)
8. Tarif E3 - Tarif perindustrian puncak/luar puncak voltan tinggi <i>Tariff E3 - High voltage peak/off - peak industrial tariff</i>			
Bagi setiap kilowatt kehendak maksimum sebulan dalam tempoh puncak <i>For each kilowatt of maximum demand per month during the peak period</i>	RM/kW	30.40	35.50
Bagi semua kWj dalam tempoh puncak <i>For all kWh during the peak period</i>	sen/ kWj cent/ kWh	28.80	33.70
Bagi semua kWj dalam tempoh luar puncak <i>For all kWh during the off-peak period</i>	sen/ kWj cent/ kWh	17.30	20.20
Caj minimum bulanan ialah <i>The minimum monthly charge is</i>	RM	600.00	600.00
Tarif E3s - Tarif perindustrian khas (untuk pengguna yang layak sahaja) <i>Tariff E3s - Special industrial tariff (for consumers who qualify only)</i>			
Bagi setiap kilowatt kehendak maksimum sebulan dalam tempoh puncak <i>For each kilowatt of maximum demand per month during the peak period</i>	RM/kW	24.40	29.00
Bagi semua kWj dalam tempoh puncak <i>For all kWh during the peak period</i>	sen/ kWj cent/ kWh	26.70	31.70
Bagi semua kWj dalam tempoh luar puncak <i>For all kWh during the off-peak period</i>	sen/ kWj cent/ kWh	14.70	17.50
Caj minimum bulanan ialah <i>The minimum monthly charge is</i>	RM	600.00	600.00
9. Tarif F - Tarif perlombongan voltan rendah <i>Tariff F - Low voltage mining tariff</i>			
Bagi semua kWj <i>For all kWh</i>	sen/ kWj cent/ kWh	32.60	38.10
Caj minimum bulanan ialah <i>The minimum monthly charge is</i>	RM	120.00	120.00
10. Tarif F1 - Tarif perlombongan am voltan sederhana <i>Tariff F1 - Medium voltage general mining tariff</i>			
Bagi setiap kilowatt kehendak maksimum sebulan <i>For each kilowatt of maximum demand per month</i>	RM/kW	18.10	21.10
Bagi semua kWj <i>For all kWh</i>	sen/ kWj cent/ kWh	26.80	31.30
Caj minimum bulanan ialah <i>The minimum monthly charge is</i>	RM	120.00	120.00
11. Tarif F2 - Tarif perlombongan puncak/luar puncak voltan sederhana <i>Tariff F2 - Medium voltage peak/off-peak mining tariff</i>			
Bagi setiap kilowatt kehendak maksimum sebulan dalam tempoh puncak <i>For each kilowatt of maximum demand per month during the peak period</i>	RM/kW	25.50	29.80
Bagi semua kWj dalam tempoh puncak <i>For all kWh during the peak period</i>	sen/ kWj cent/ kWh	26.80	31.30
Bagi semua kWj dalam tempoh luar puncak <i>For all kWh during the off-peak period</i>	sen/ kWj cent/ kWh	14.70	17.20
Caj minimum bulanan ialah <i>The minimum monthly charge is</i>	RM	120.00	120.00
12. Tarif G - Tarif lampu jalanraya <i>Tariff G - Street lighting tariff</i>			
Bagi semua kWj (termasuk senggaraan) <i>For all kWh (including maintenance)</i>	RM/kW	26.10	30.50
Bagi semua kWj (tidak termasuk senggaraan) <i>For all kWh (excluding maintenance)</i>	sen/ kWj cent/ kWh	16.40	19.20
Caj minimum bulanan ialah <i>The minimum monthly charge is</i>	RM	7.20	7.20

Jadual 5.9a: Tarif elektrik, Semenanjung Malaysia (samb.)

Table 5.9a: Electricity tariff, Peninsular Malaysia (cont'd)

Kategori tarif Tariff category	Unit	Kadar semasa Existing rates (1 Jun 2011)	Kadar baru New rates (1 Januari 2014)
13. Tarif G1 - Tarif lampu neon & lampu limpah <i>Tariff G1 - Neon & floodlight tariff</i>			
Bagi semua kWj For all kWh	sen/ kWj cent/ kWh	17.80	20.80
Caj minimum bulanan ialah The minimum monthly charge is	RM	7.20	7.20
14. Tarif H - Tarif pertanian spesifik voltan rendah <i>Tariff H - Low voltage specific agriculture tariff</i>			
Bagi jumlah penggunaan keseluruhan di antara 0 - 200 kWj sebulan: <i>For overall monthly consumption between 0 - 200 kWh per month:</i>			
Bagi semua kWj (dan 1kWj ke atas) For all kWh (from 1kWh and above)	sen/ kWj cent/ kWh	36.90	
Caj minimum bulanan ialah The minimum monthly charge is	RM	7.20	
Bagi jumlah penggunaan keseluruhan melebihi 200 kWj sebulan: <i>For overall monthly consumption more than 200 kWh per month:</i>			
Bagi semua kWj (dan 1kWj ke atas) For all kWh (from 1kWh and above)	sen/ kWj cent/ kWh	40.30	
Caj minimum bulanan ialah The minimum monthly charge is	RM	7.20	
Sruktur baru <i>New structure</i>			
200 kWj pertama (1 - 200 kWj) sebulan For the first 200 kWh (1-200 kWh) per month	sen/ kWj cent/ kWh		39.00
Setiap kWj berikutnya (201 kWj ke atas) sebulan For the next kWh (201 kWh onwards) per month	sen/ kWj cent/ kWh		47.20
Caj minimum bulanan ialah The minimum monthly charge is	RM		7.20
15. Tarif H1 - Tarif pertanian spesifik am voltan sederhana <i>Tariff H1 - Medium voltage general specific agriculture tariff</i>			
Bagi setiap kilowatt kehendak maksimum sebulan For each kilowatt of maximum demand per month	RM/kW	25.90	30.30
Bagi semua kWj For all kWh	sen/ kWj cent/ kWh	30.00	35.10
Caj minimum bulanan ialah The minimum monthly charge is	RM	600.00	600.00
16. Tarif H2 - Tarif pertanian spesifik puncak/luar puncak voltan sederhana <i>Tariff H2 - Medium voltage peak/off-peak specific agriculture tariff</i>			
Bagi setiap kilowatt kehendak maksimum sebulan dalam tempoh puncak For each kilowatt of maximum demand per month during the peak period	RM/kW	34.90	40.80
Bagi semua kWj dalam tempoh puncak For all kWh during the peak period	sen/ kWj cent/ kWh	31.20	36.50
Bagi semua kWj dalam tempoh luar puncak For all kWh during the off-peak period	sen/ kWj cent/ kWh	19.20	22.40
Caj minimum bulanan ialah The minimum monthly charge is	RM	600.00	600.00

Sumber/ Source: Tenaga Nasional Berhad

Nota: Kutipan 1.6% Feed-in Tariff (FiT) akan dikenakan ke atas bil elektrik bulanan pengguna (kecuali pengguna domestik yang menggunakan sehingga 300kWj sebulan) berkuatkuasa mulai 1 Januari 2014. Tarif ini adalah berkuatkuasa mulai 1 Januari 2014 dan akan menggantikan tarif sebelumnya yang berkuatkuasa pada 1 Jun 2011

Notes: 1.6% for Feed-in-Tariff (FiT) is imposed on consumers' monthly bill (excluding Domestic consumers with monthly consumption of 300kWh and below) effective from 1st January 2014. This tariff is effective from 1st January 2014 and supersedes the previous tariff schedule which was effective from 1st June 2011

Jadual 5.9b: Tarif elektrik, Sabah

Table 5.9b: Electricity tariff, Sabah

Bil. No.	Kategori tarif Tariff category	Unit	Kadar semasa Current rate
1	Tarif DM - Tarif kediaman <i>Tariff DM - Domestic tariff</i>		
	100 kWj pertama (1-100 kWj) sebulan <i>For the first 100 kWh (1-100 kWh) per month</i>	sen/kWj <i>cent/kWh</i>	17.50
	100 kWj berikutnya (101-200 kWj) sebulan <i>For the next 100 kWh (101-200 kWh) per month</i>	sen/kWj <i>cent/kWh</i>	18.50
	300 kWj berikutnya (201-300 kWj) sebulan <i>For the next 300 kWh (201-300 kWh) per month</i>	sen/kWj <i>cent/kWh</i>	33.00
	200 kWj berikutnya (301-500 kWj) sebulan <i>For the next 200 kWh (301-500 kWh) per month</i>	sen/kWj <i>cent/kWh</i>	44.50
	500 kWj berikutnya (501-1000 kWj) sebulan <i>For the next 500 kWh (501-1000 kWh) per month</i>	sen/kWj <i>cent/kWh</i>	45.00
	Setiap kWj berikutnya (1001 kWj ke atas) sebulan <i>For the next kWh (1001 kWh and above) per month</i>	sen/kWj <i>cent/kWh</i>	47.00
	Caj minimum bulanan <i>Minimum monthly charge</i>	RM/kW	5.00
2	Tarif CM1 - Tarif Perdagangan voltan rendah <i>Tariff CM1 - Low voltage commercial tariff</i>		
	200 kWj pertama (1-200 kWj) sebulan <i>For the first 200 kWh (1-200 kWh) per month</i>	sen/kWj <i>cent/kWh</i>	38.50
	Setiap kWj berikutnya (201 kWj ke atas) sebulan <i>For the next kWh (201 kWh and above) per month</i>	sen/kWj <i>cent/kWh</i>	39.50
	Caj minimum bulanan <i>Minimum monthly charge</i>	RM	15.00
3	Tarif CM2 - Perdagangan am voltan sederhana <i>Tariff CM2 - Medium voltage general commercial tariff</i>		
	Bagi setiap kilowatt kehendak maksimum sebulan <i>For each kilowatt of maximum demand per month</i>	RM/kW	23.20
	Bagi semua kWj <i>For all kWh</i>	sen/kWj <i>cent/kWh</i>	32.40
	Caj minimum bulanan <i>Minimum monthly charge</i>	RM	1000.00
4	Tarif CM3 - Tarif perdagangan <i>Tariff CM3 - Commercial tariff</i>		
	Puncak/luar puncak voltan sederhana <i>Tariff CM3 – Medium voltage peak/off peak commercial</i>		
	Bagi setiap kilowatt kehendak maksimum sebulan dalam tempoh puncak <i>For each kilowatt of maximum demand per month during the peak period</i>	RM/kW	32.60
	Bagi semua kWj dalam tempoh luar puncak <i>For all kWh during the off-peak period</i>	sen/kWj <i>cent/kWh</i>	19.50
	Caj minimum bulanan <i>Minimum monthly charge</i>	RM	1000.00
5	Tarif ID1 – Tarif perindustrian voltan rendah <i>Tariff ID1 - Low voltage Industrial tariff</i>		
	Bagi semua kWj <i>For all kWh</i>	sen/kWj <i>cent/kWh</i>	37.60
	Caj minimum bulanan <i>Minimum monthly charge</i>	RM	15.00

Jadual 5.9b: Tarif elektrik, Sabah (samb.)

Table 5.9b: Electricity tariff, Sabah (cont'd)

Bil. No.	Kategori tarif Tariff category	Unit	Kadar semasa Current rate
6	Tarif F1 - Perlombongan am voltan sederhana <i>Tariff F1 - Medium voltage general mining tariff</i>		
	Bagi setiap kilowatt kehendak maksimum sebulan dalam tempoh puncak <i>For each kilowatt of maximum demand per month during the peak period</i>	RM/kW	21.75
	Bagi semua kWj <i>For all kWh</i>	sen/kWj cent/kWh	26.80
	Caj minimum bulanan <i>Minimum monthly charge</i>	RM	1000.00
7	Tarif ID3 - Tarif perindustrian puncak/luar puncak voltan sederhana <i>Tariff ID3 - Medium voltage peak/off peak industrial</i>		
	Bagi setiap kilowatt kehendak maksimum sebulan dalam tempoh puncak <i>For each kilowatt of maximum demand per month during the peak period</i>	sen/kWj cent/kWh	28.00
	Bagi semua kWj dalam tempoh puncak <i>For all kWh during the peak period</i>	sen/kWj cent/kWh	28.60
	Bagi semua kWj dalam tempoh luar puncak <i>For all kWh during the off-peak period</i>	RM	18.00
	Caj minimum bulanan <i>Minimum monthly charge</i>	RM	1000.00
8	Tarif PL - Tarif lampu jalanraya <i>Tariff PL - Public lighting</i>		
	Bagi semua kWj (Tidak termasuk senggaraan) <i>For all kWh (excluding maintenance)</i>	sen/kWj cent/kWh	20.30
	Bagi semua kWj (termasuk senggaraan) <i>For all kWh (including maintenance)</i>	sen/kWj cent/kWh	36.30
	Caj minimum bulanan <i>Minimum monthly charge</i>	RM	15.00

Sumber: Sabah Electricity Sdn Bhd.
Source: Sabah Electricity Sdn. Bhd.

Jadual 5.9c: Tarif elektrik, Sarawak
Table 5.9c: Electricity tariff, Sarawak

Kategori tarif <i>Tariff category</i>	Kadar per unit <i>Rate per unit</i>
Tarif D - Kediaman <i>Tariff D - Domestic</i>	
1 - 100 unit <i>units</i>	18.0 sen
1 - 150 unit <i>units</i>	18.0 sen
1 - 200 unit <i>units</i>	22.0 sen
1 - 300 unit <i>units</i>	25.0 sen
1 - 400 unit <i>units</i>	27.0 sen
1 - 500 unit <i>units</i>	29.5 sen
1 – 700 unit <i>units</i>	30.0 sen
1 - 800 unit <i>units</i>	30.5 sen
1 - 1,300 unit <i>units</i>	31.0 sen
Melebihi 1,300 unit <i>Above 1,300 units</i>	31.5 sen
Caj minimum bulanan <i>Minimum monthly charge</i>	RM5.00
Tarif C1 - Komersil <i>Tariff C1 - Commercial</i>	
1 - 100 unit <i>units</i>	20.0 sen
1 - 200 unit <i>units</i>	24.0 sen
1 - 300 unit <i>units</i>	26.0 sen
1 - 400 unit <i>units</i>	28.0 sen
1 - 500 unit <i>units</i>	30.0 sen
1 - 3,000 unit <i>units</i>	31.5 sen
1 - 10,000 unit <i>units</i>	32.0 sen
1 - 20,000 unit <i>units</i>	31.0 sen
1 - melebihi 20,000 unit <i>1 - above 20,000 units</i>	30.0 sen
Caj minimum bulanan <i>Minimum monthly charge</i>	RM10.00

Jadual 5.9c: Tarif elektrik, Sarawak (samb.)
Table 5.9c: Electricity tariff, Sarawak (cont'd)

Kategori tarif <i>Tariff category</i>	Kadar per unit <i>Rate per unit</i>
Tarif C2 - Kehendak perdagangan <i>Tariff C2 - Commercial demand</i>	
Semua penggunaan <i>All consumption</i>	24.5 sen
Bagi setiap kilowatt kehendak maksimum sebulan <i>For each kilowatt of maximum demand per month</i>	RM16.00
Caj minimum bulanan <i>Minimum monthly charge</i>	RM 16.00 per kilowatt x kehendak bil <i>RM 16.00 per kilowatt x billing demand</i>
Tarif C3 - Kehendak waktu puncak/bukan waktu puncak perdagangan <i>Tariff C3 - Commercial peak/off-peak demand</i>	
Bagi setiap unit waktu puncak <i>For each unit during the peak period</i>	24.5 sen
Bagi setiap unit bukan waktu puncak <i>For each unit during the off-peak period</i>	13.9 sen
Bagi setiap kilowatt kehendak maksimum sebulan semasa waktu puncak <i>For each kilowatt of maximum demand per month during the peak period</i>	RM20.00
Caj minimum bulanan <i>Minimum monthly charge</i>	RM 20.00 per kilowatt x kehendak bil <i>RM 20.00 per kilowatt X billing demand</i>
Sumber: Sarawak Energy Berhad <i>Source: Sarawak Energy Berhad</i>	

Jadual 5.10: Penjanaan tenaga elektrik mengikut kawasan dan stesen, Malaysia, 2020-2024

Table 5.10: Electricity generated by region and station, Malaysia, 2020-2024

Juta kWj
Million kWh

Kawasan Region	Tahun Year	Stesen wap Steam stations	Stesen diesel Diesel stations	Stesen hidro Hydro stations	Turbin gas Gas turbines	Lain-lain ¹ Others	Jumlah Total
Malaysia	2020 ^r	0	735.2	27,470.00	48,597.50	87,783.40	164,586.10
	2021 ^r	0	984.1	30,391.70	55,473.20	82,455.00	169,304.00
	2022 ^r	0	1,690.30	31,265.70	63,018.00	82,214.60	178,188.60
	2023 ^r	0	1,248.20	31,225.40	64,898.00	86,658.20	184,029.80
	2024 ^p	0	1,172.30	33,135.60	66,832.80	92,572.80	193,713.50
Semenanjung Malaysia Peninsular Malaysia	2020 ^r	0	71.9	5,426.00	38,308.60	84,076.60	127,883.20
	2021 ^r	0	193.8	6,798.80	44,655.70	78,197.00	129,845.20
	2022 ^r	0	872.4	6,751.50	50,395.30	77,503.70	135,522.90
	2023 ^r	0	283.9	6,132.30	51,000.50	81,750.80	139,167.60
	2024 ^p	0	160.5	6,764.70	53,852.90	87,354.70	148,132.80
Sabah	2020 ^r	0	507.1	421.7	5,673.60	433	7,035.40
	2021 ^r	0	633.5	392.1	5,778.90	455.7	7,260.20
	2022 ^r	0	660.7	315.8	6,396.40	563.5	7,936.30
	2023 ^r	0	768.8	15.9	6,782.30	646.9	8,213.90
	2024 ^p	0	812.8	235.2	7,012.10	825.5	8,885.60
Sarawak	2020 ^r	0	156.2	21,622.20	4,615.30	3,273.70	29,667.40
	2021 ^r	0	156.7	23,200.90	5,038.60	3,802.30	32,198.60
	2022 ^r	0	157.3	24,198.30	6,226.40	4,147.40	34,729.40
	2023 ^r	0	195.4	25,077.20	7,115.20	4,260.50	36,648.30
	2024 ^p	0	199	26,135.60	5,967.80	4,392.70	36,695.10

Sumber: Tenaga Nasional Berhad, Sabah Electricity Sdn Bhd., Sarawak Energy Berhad dan Pengeluar Tenaga Bebas

Source: Tenaga Nasional Berhad, Sabah Electricity Sdn. Bhd., Sarawak Energy Berhad and Independent Power Producer

Nota: ¹ Semenanjung Malaysia merujuk kepada stesen penjanaan bersumberkan arang batu dan minyak, Sabah merujuk kepada biomas dan Sarawak merujuk kepada arang batu
Peninsular Malaysia refers to the coal and oil sourced generating station, Sabah refers to biomass and Sarawak refers to coal

Nilai 0.0 merujuk kepada kurang daripada setengah unit terkecil yang ditunjukkan
0.0 value refers to less than half the smallest unit shown

Jadual 5.11: Tenaga elektrik yang dibekalkan dan digunakan, Malaysia, 2020-2024

Table 5.11: Electricity supplied and consumed, Malaysia, 2020-2024

	Juta kWj Million kWh				
Transaksi Transaction	2020	2021	2022	2023	2024*
Tenaga elektrik yang dijana Electricity generated	162,586.1	169,304.0	178,188.6	184,029.8	193,713.5
Tenaga elektrik yang diimport Electricity imported	17.9	33.8	2.9	32.8	56.2
Jumlah bekalan Total supply	164,604.0	169,337.8	178,191.6	184,062.6	193,769.7
Kegunaan tenaga elektrik:- Consumption of electricity:-					
Kegunaan sendiri oleh pemasangan swasta Own consumption by private installations	4,008.2	4,699.7	6,056.7	6,155.4	6,284.7
Edaran oleh pemasangan awam mengikut jenis pengguna:- Distribution by public installations by type of consumers:-					
(i) Kediaman Domestic	34,616.2	36,445.1	36,435.2	38,639.1	41,963.2
(ii) Perniagaan Commercial	41,271.3	39,528.9	46,489.4	49,811.1	54,114.9
(iii) Perindustrian Industrial	64,862.3	68,147.4	72,489.4	72,934.3	73,546.4
(iv) Lampu awam Public lighting	1,666.1	1,683.6	390.5	418.7	452.1
Jumlah edaran Total distribution	142,416.0	145,805.0	155,804.6	161,803.2	170,076.6
Tenaga elektrik yang dieksport Electricity exported	1,570.5	974.5	815.7	893.1	917.5
Kehilangan dalam pancaran dan perbezaan perangkaan Losses in transmissions and statistical discrepancies	13,220.4	17,858.7	15,514.5	15,210.9	16,490.9
Jumlah Total	164,604.0	169,337.8	178,191.6	184,062.6	193,769.7

Sumber: Tenaga Nasional Berhad, Sabah Electricity Sdn. Bhd.,
Sarawak Energy Berhad dan Pengeluar Tenaga Bebas
Source: Tenaga Nasional Berhad, Sabah Electricity Sdn. Bhd.,
Sarawak Energy Berhad and Independent Power Producer

Jadual 5.12: Nisbah personel perubatan terlatih¹- penduduk, Malaysia, 2020-2024

Table 5.12: Trained medical personnel-population ratio, Malaysia, 2020-2024

Personel perubatan Medical personnel	2020	2021	2022	2023	2024
Doktor Doctor	1:441	1:420	1:412	1:406	1:404
Doktor gigi Dentist	1:2,816	1:2,597	1:2,434	1:2,343	1:2313
Jururawat Nurses	1:297	1:283	1:279	1:282	1:280

Sumber: Kementerian Kesihatan Malaysia
Source: Ministry of Health Malaysia

Nota: ¹ Personel perubatan terlatih kerajaan dan swasta
Notes: Government and private trained medical personnel

Pengiraan nisbah adalah berasaskan anggaran penduduk semasa, Jabatan Perangkaan Malaysia
The calculation of the ratios was based on the current population estimates, Department of Statistics, Malaysia

Jadual 5.13: Panjang jalan raya mengikut jenis jalan raya dan bidang kuasa², Malaysia, 2020-2024

Table 5.13: Road length by type of road and jurisdiction, Malaysia, 2020-2024

		Kilometer Kilometre				
Bidang kuasa Jurisdiction	Jenis Type	2020	2021	2022	2023	2024
Jumlah Total		290,247	301,086	303,079	390,011	412,819
Persekutuan Federal	Berturap Paved	43,072	43,093	43187	62,552	72,650
Negeri State	Jumlah Total	247,176	257,993	259,892	327,459	340,169
	Berturap Paved	178,568	182,918	178961	244,329	255,471
	Kelikir Gravel	45,854	49,313	51,126	52,379	54,012
	Tanah Earth	22,754	25,762	29,805	30,750	30,687

Nota: ² Tidak termasuk jalan di bawah tanggungjawab Pihak Berkuasa Tempatan
Notes: Excludes roads maintain by Local Authorities

Sumber: Jabatan Kerja Raya
Source: Public Works Department

Jadual 5.14: Pendaftaran baharu kenderaan bermotor mengikut jenis, Malaysia, 2020-2024

Table 5.14: New registrations of motor vehicle by type, Malaysia, 2020-2024

Jenis kenderaan Vehicles type	2020	2021	2022	2023	2024
Jumlah Total	1,163,262	1,192,413	1,522,766	1,533,101	1,570,225
Kenderaan awam Public transport	5,748	2,789	4,414	7,394	7,709
Kenderaan perdagangan Commercial vehicles	30,559	33,657	41,129	39,390	39,839
Motokar Motorcars	534,657	523,886	735,643	822,709	847,275
Motosikal Motorcycles	569,072	614,599	718,390	642,216	655,837
Lain-lain kenderaan ¹ Other vehicles	23,226	17,482	23,190	21,392	19,565

Sumber: Jabatan Pengangkutan Jalan
Source: Road Transport Department

Nota: ¹Merangkumi kenderaan seperti karavan, kenderaan bomba kerajaan & swasta, kenderaan sekolah memandu, kenderaan mayat, kenderaan orang cacat, kenderaan kerajaan, kenderaan pihak berkuasa tempatan, ambulan dan kenderaan kedutaan

Notes: Includes vehicles such as caravans, government & private fire vehicles, driving school vehicles, hearse, vehicle for disabled person, government vehicles, local authority vehicles, ambulance and embassy vehicles

Jadual 5.15: Bilangan ketibaan dan pelepasan kapal laut yang terlibat dalam perdagangan antarabangsa di pelabuhan terpilih, Malaysia, 2019-2023

Table 5.15: Number of arrivals and departures of ocean-going vessel engaged in foreign trade at selected ports, Malaysia, 2019-2023

Pelabuhan Port	Ketibaan Arrivals					Pelepasan Departures				
	2019	2020	2021	2022	2023*	2019	2020	2021	2022	2023*
Jumlah <i>Total</i>	28,426	18,385	29,276	27,275	55,442	28,105	18,230	29,320	27,899	55,913
Bintulu	2,126	1,955	1,536	1,477	7,619	2,322	2,104	1,517	1,492	7,634
Klang	12,551	11,776	11,507	10,870	13,609	12,551	11,776	11,469	11,450	14,189
Kota Kinabalu	843	339	430	455	10,150	483	339	417	443	10,009
Kuantan	2,117	-	1,858	1,566	2,357	2,117	-	1,861	1,571	2,362
Kuching	1,180	1,160	458	492	1,351	983	826	458	493	1,359
Kudat dan Kunak	169	136	4	-	-	169	136	4	-	-
Lahad Datu	559	500	500	481	-	559	500	497	480	-
Melaka ¹	-	-	346	-	-	-	-	346	-	-
Miri	702	483	192	84	9,600	790	545	189	81	9,588
Port Dickson	-	-	491	557	981	-	-	490	555	976
Pulau Pinang	5,770	-	1,804	1,660	4,653	5,798	-	1,799	1,648	4,641
Rajang ²	497	382	-	-	435	421	350	-	-	405
Sandakan	822	756	492	518	-	822	756	488	511	-
Sepanggar Bay Oil Terminal	253	200	-	-	-	253	200	-	-	-
Sepanggar Bay Container Port	240	154	-	-	-	240	154	-	-	-
Tanjung Pelepas	-	-	9,254	8,715	4,687	-	-	9,372	8,778	4,750
Tawau	597	544	404	400	-	597	544	413	397	-

Sumber: Jabatan Laut Malaysia, Lembaga Pelabuhan Klang, Perbadanan Pelabuhan Pulau Pinang Sdn. Bhd., Konsortium Pelabuhan Kuantan Sdn. Bhd., Sabah Ports Sdn Bhd

Source: Malaysia Marine Department, Port Klang Authority, Penang Port Sdn. Bhd., Kuantan Port Consortium Sdn. Bhd., Sabah Ports Sdn Bhd

Nota: ¹ Merujuk kepada Pelabuhan Melaka, Sungai Udang dan Tanjung Bruas

Notes: Refers to Port of Melaka, Sungai Udang and Tanjung Bruas

² Termasuk pelabuhan di Sibul, Bintangor, Sarikei dan Tanjung Manis

Includes port at Sibul, Bintangor, Sarikei and Tanjung Manis

Jadual 5.16: Kargo yang dikendalikan mengikut pelabuhan, Malaysia, 2020-2024

Table 5.16: Cargo throughput by port, Malaysia, 2020-2024

Tan metrik (berat muatan) '000
Metric tonnes (freightweight)

Pelabuhan Port		2020	2021	2022	2023	2024
Jumlah Total	Jumlah Total	426,206	426,301	421,351	444,266	331,643
	Import Imports	203,503	207,882	205,921	226,466	170,392
	Eksport Exports	222,703	218,419	215,430	217,797	161,251
	Jumlah Total	41,499	37,072	41,956	41,751	44,241
Bintulu	Import Imports	4,245	4,083	4,783	4,943	5,710
	Eksport Exports	37,254	32,989	37,173	36,808	38,531
	Jumlah Total	30,036	30,331	30,769	29,050	29,870
	Import Imports	16,578	16,594	17,275	17,132	17,782
Johor	Eksport Exports	13,457	13,737	13,494	11,918	12,088
	Jumlah Total	6,956	5,447	4,529	5,322	7,069
	Import Imports	3,438	2,524	2,019	2,487	3,551
	Eksport Exports	3,518	2,923	2,510	2,835	3,518
Kemaman	Jumlah Total	221,421	235,539	226,143	242,597	127,689
	Import Imports	115,993	122,987	119,443	129,907	74,486
	Eksport Exports	105,428	112,552	106,700	112,690	53,203
	Jumlah Total	27,266	22,859	22,366	25,272	25,751
Kuantan	Import Imports	12,835	11,011	11,130	13,778	13,895
	Eksport Exports	14,431	11,848	11,236	11,494	11,857
	Jumlah Total	8,197	8,892	9,869	9,349	9,962
	Import Imports	6,206	7,202	8,327	7,890	8,482
Kuching	Eksport Exports	1,991	1,690	1,543	1,459	1,479
	Jumlah Total	3,496	3,218	3,366	3,119	3,201
	Import Imports	595	564	488	490	564
	Eksport Exports	2,901	2,654	2,877	2,629	2,637

Jadual 5.16: Kargo yang dikendalikan mengikut pelabuhan, Malaysia, 2020-2024 (samb.)

Table 5.16: Cargo throughput by port, Malaysia, 2020-2024 (cont'd)

Tan metrik (berat muatan) '000
Metric tonnes (freightweight)

Pelabuhan Port		2020	2021	2022	2023	2024
Port Dickson	Jumlah Total	15,846	11,624	11,555	17,280	13,199
	Import Imports	12,379	9,830	9,236	12,899	10,328
	Eksport Exports	3,467	1,794	2,320	4,380	2,871
Pulau Pinang	Jumlah Total	29,236	28,735	29,664	31,644	31,937
	Import Imports	15,876	15,932	16,161	17,310	17,909
	Eksport Exports	13,360	12,803	13,503	14,334	14,028
Rajang	Jumlah Total	1,360	1,412	1,493	1,411	1,478
	Import Imports	1,058	1,165	1,247	1,174	1,223
	Eksport Exports	302	247	246	237	254
Sabah	Jumlah Total	29,558	30,151	29,234	27,547	28,691
	Import Imports	10,674	11,904	12,724	12,093	13,664
	Eksport Exports	18,883	18,247	16,510	15,453	15,027
Tanjung Bruas	Jumlah Total	819	584	487	535	504
	Import Imports	786	508	402	483	399
	Eksport Exports	33	76	85	52	105
Tanjung Pelepas	Jumlah Total	8,697	8,080	7,809	7,458	6,048
	Import Imports	2,446	3,141	2,280	5,431	2,040
	Eksport Exports	6,251	4,939	5,529	2,027	4,008
Teluk Ewa	Jumlah Total	1,819	2,357	2,110	1,931	2,003
	Import Imports	394	437	406	451	358
	Eksport Exports	1,425	1,920	1,703	1,480	1,645

Nota: Tidak termasuk pindah kapal
Note: Excluding trans-shipment

Sumber: Kementerian Pengangkutan
Source: Ministry of Transport

Jadual 5.17: Penumpang yang dikendalikan di lapangan terbang, Malaysia, 2020-2024

Table 5.17: Passengers handled at airports, Malaysia, 2020-2024

					Bilangan penumpang Number of passengers
Penumpang yang dikendalikan <i>Passengers handled</i>	2020	2021	2022	2023	2024
Jumlah <i>Total</i>	26,857,647	11,109,303	54,935,773	84,966,090	97,205,570
Pelepasan <i>Departure</i>	13,553,488	5,748,382	27,407,649	42,381,209	48,954,352
Ketibaan <i>Arrival</i>	13,232,437	5,270,556	27,328,436	42,501,617	48,170,322
Transit <i>Transit</i>	71,722	90,365	199,688	83,264	80,896

Sumber: Kementerian Pengangkutan
Source: Ministry of Transport

Jadual 5.18: Kargo yang dikendalikan di lapangan terbang, Malaysia, 2020-2024

Table 5.18: Cargo handled at airports, Malaysia, 2020-2024

					Tan metrik Metric tonnes
Kargo yang dikendalikan Cargo handled	2020	2021	2022	2023	2024
Jumlah Total	804,441	1,051,190	1,091,115	946,164	1,091,079
Diangkut Loaded	383,387	498,551	506,705	428,836	484,932
Dihantar Unloaded	405,751	509,523	553,821	500,097	588,150
Transit Transit	15,303	43,116	30,589	17,231	17,997

Sumber: Kementerian Pengangkutan
Source: Ministry of Transport

Jadual 5.19: Bilangan kes dan kadar insiden Penyakit Bawaan Makanan dan Air, Malaysia, 2020-2024

Table 5.19: Number of cases and incidence rate of Food and Water Borne Diseases, Malaysia, 2019-2023

Tahun Year	Disentri Dysentery		Keracunan makanan Food poisoning		Kolera Cholera		Tifoid Typhoid		Hepatitis A	
	Kes Cases	(KI) (IR)	Kes Cases	(KI) (IR)	Kes Cases	(KI) (IR)	Kes Cases	(KI) (IR)	Kes Cases	(KI) (IR)
2020	157	0.5	9,425	28.9	115	0.4	64	0.2	47	0.1
2021	198	0.6	6,007	18.4	64	0.2	102	0.3	24	0.1
2022	254	0.8	14,293	43.8	8	0	93	0.3	63	0.2
2023	515	1.5	17,916	53.7	48	0.1	118	0.4	154	0.5
2024	841	2.5	24,910	73.1	70	0.2	143	0.4	101	0.5

Nota: KI - Kadar insiden bagi setiap 100,000 penduduk
Notes: IR Incidence rate per 100,000 populations

Sumber: Kementerian Kesihatan Malaysia
Source: Ministry of Health Malaysia

Jadual 5.20: Kadar insiden keracunan makanan mengikut negeri, Malaysia, 2020-2024

Table 5.20: Incidence rate of food poisoning by state, Malaysia, 2020-2024

Bagi setiap 100,000 penduduk
Per 100,000 population

Negeri State	2020	2021	2022	2023	2024
Malaysia	28.9	18.4	43.8	53.7	73.1
Johor	29.2	13.6	34.2	39.0	54.5
Kedah	48.1	11.4	44.5	72.9	149.5
Kelantan	22.6	3.5	49.8	71.2	101.5
Melaka	39.7	26.1	79.5	91.2	131.5
Negeri Sembilan	113.3	47.7	55.8	110.8	96.2
Pahang	39.6	30.9	43.8	48.1	48.6
Perak	16.8	16.0	41.9	82.8	91.8
Perlis	123.0	15.7	71.4	67.0	72.4
Pulau Pinang	18.4	21.4	41.5	39.7	53.7
Sabah	15.9	11.5	59.1	36.4	44.2
Sarawak	13.9	6.0	20	31.1	34.1
Selangor	23.1	21.4	38.4	36.8	71.0
Terengganu	39.8	17.8	84.9	83.6	144.1
W.P. Kuala Lumpur ¹	23.8	42.6	27.2	65.6	38.4
W.P. Labuan	31.2	66.9	105.4	149.8	120.0

Nota: ¹Termasuk W.P. Putrajaya
Notes: Includes W.P. Putrajaya

Sumber: Kementerian Kesihatan Malaysia
Source: Ministry of Health Malaysia

Jadual 5.21: Kadar insiden kolera mengikut negeri, Malaysia, 2020-2024

Table 5.21: Incidence rate of cholera by state, Malaysia, 2020-2024

Bagi setiap 100,000 penduduk
Per 100,000 population

Negeri State	2020	2021	2022	2023	2024
Malaysia	0.4	0.2	0.0	0.1	0.2
Johor	-	-	-	-	-
Kedah	-	-	-	-	-
Kelantan	-	-	-	-	-
Melaka	-	-	-	-	-
Negeri Sembilan	-	-	-	-	-
Pahang	-	-	-	-	-
Perlis	-	-	-	-	-
Pulau Pinang	-	-	-	-	0.1
Perak	-	-	-	-	-
Sabah	2.9	1.6	0.2	1.3	1.8
Sarawak	-	-	-	-	-
Selangor	-	0	-	-	0
W.P. Kuala Lumpur ¹	0.1	-	0.1	-	-
W.P. Labuan	1	-	-	-	-

Nota: ¹Termasuk W.P. Putrajaya
Notes: Includes W.P. Putrajaya

Sumber: Kementerian Kesihatan Malaysia
Source: Ministry of Health Malaysia

Nilai 0.0 merujuk kepada kurang daripada setengah unit terkecil yang ditunjukkan
0.0 value refers to less than half the smallest unit shown

Jadual 5.22: Kadar insiden tifoid¹ mengikut negeri, Malaysia, 2020-2024

Table 5.22: Incidence rate of typhoid by state, Malaysia, 2020-2024

Bagi setiap 100,000 penduduk
Per 100,000 population

Negeri State	2020	2021	2022	2023	2024
Malaysia	0.2	0.3	0.3	0.4	0.4
Johor	0.1	-	0.1	0.1	0.4
Kedah	0.1	-	0.2	0.2	0.3
Kelantan	0.7	0.3	2.1	0.6	1.5
Melaka	-	-	0.4	0.1	0.1
Negeri Sembilan	-	-	0.1	0.7	0.3
Pahang	0.1	0.1	0.1	0.4	0.1
Perak	0.0	0.2	0.2	0.3	0.4
Perlis	0.4	-	-	-	-
Pulau Pinang	0.2	-	0.1	1.0	0.7
Sabah	0.6	0.9	0.5	0.5	0.8
Sarawak	0.0	0.6	0.3	0.1	0.2
Selangor	0.1	0.5	0.1	0.3	0.3
Terengganu	-	-	-	0.1	0.2
W.P. Kuala Lumpur ²	0.2	0.2	0.2	0.7	0.2
W.P. Labuan	-	1.0	-	-	-

Nota: ¹ Mulai tahun 2019, penyakit Tifoid termasuk Paratyphi
Notes: Starting from year 2019, Typhoid also include Paratyphi

Sumber: Kementerian Kesihatan Malaysia
Source: Ministry of Health Malaysia

² Termasuk W.P. Putrajaya
Includes W.P. Putrajaya

Nilai 0.0 merujuk kepada kurang daripada setengah unit terkecil yang ditunjukkan
0.0 value refers to less than half the smallest unit shown

Jadual 5.23: Bilangan kes demam denggi mengikut negeri, Malaysia, 2020-2024

Table 5.23: Number of dengue fever cases by state, Malaysia, 2020-2024

Negeri State	2020	2021	2022	2023	2024
Malaysia	89,960	26,301	65,987	123,133	122,423
Johor	11,578	1,770	4,214	10,794	13,190
Kedah	777	641	1,458	5,207	4,452
Kelantan	3,881	223	1,223	2,790	3,445
Melaka	2,832	611	662	1,221	2,203
Negeri Sembilan	2,879	647	2,050	5,133	7,044
Pahang	3,209	425	974	1,609	1,958
Perak	2,658	554	1,381	4,516	6,924
Perlis	80	20	160	821	250
Pulau Pinang	1,039	406	1,618	7,346	4,370
Sabah	4,057	1,758	7,092	6,983	5,021
Sarawak	1,511	425	666	1,091	1,755
Selangor	44,523	15,712	37,502	61,080	60,364
Terengganu	404	49	245	277	284
W.P. Kuala Lumpur ¹	10,525	3,055	6,714	14,206	11,133
W.P. Labuan	7	5	28	59	30

Nota: ¹Termasuk W.P. Putrajaya
Notes: Includes W.P. Putrajaya

Sumber: Kementerian Kesihatan Malaysia
Source: Ministry of Health Malaysia

Jadual 5.24: Bilangan kes demam denggi berdarah mengikut negeri, Malaysia, 2020-2024

Table 5.24: Number of dengue haemorrhagic fever cases by state, Malaysia, 2020-2024

Negeri State	2020	2021	2022	2023	2024
Malaysia	344	64	115	-	95
Johor	44	5	10	-	20
Kedah	3	3	3	-	13
Kelantan	8	-	4	-	4
Melaka	11	-	3	-	2
Negeri Sembilan	12	2	3	-	7
Pahang	11	3	2	-	5
Perak	7	3	3	-	5
Perlis	-	1	1	-	-
Pulau Pinang	4	-	3	-	11
Sabah	21	5	18	-	6
Sarawak	5	1	5	-	6
Selangor	112	29	40	-	6
Terengganu	-	-	1	-	1
W.P. Kuala Lumpur ¹	106	12	19	-	9
W.P. Labuan	-	-	-	-	-

Nota: ¹ Termasuk W.P. Putrajaya
Notes: Includes W.P. Putrajaya

Sumber: Kementerian Kesihatan Malaysia
Source: Ministry of Health Malaysia

Jadual 5.25: Bilangan kes malaria mengikut negeri, Malaysia, 2020-2024

Table 5.25: Number of malaria cases by state, Malaysia, 2020-2024

Negeri State	2020	2021	2022	2023	2024
Malaysia	2,839	3,688	2,807	3,629	2,384
Johor	28	15	52	54	30
Kedah	13	8	21	39	13
Kelantan	111	124	163	236	124
Melaka	-	-	2	10	2
Negeri Sembilan	12	14	35	62	14
Pahang	74	104	82	102	63
Perak	99	94	84	134	76
Perlis	-	-	2	5	-
Pulau Pinang	2	2	7	59	24
Sabah	1,537	2,204	1,516	1,860	1,254
Sarawak	862	1,057	738	818	599
Selangor	68	29	50	149	115
Terengganu	28	36	32	65	30
W.P. Kuala Lumpur ¹	5	1	23	34	39
W.P. Labuan	-	-	-	2	1

Nota: ¹ Termasuk W.P. Putrajaya
Notes: Includes W.P. Putrajaya

Sumber: Kementerian Kesihatan Malaysia
Source: Ministry of Health Malaysia

Jadual 5.26: Bilangan kematian mengikut jenis penyakit, Malaysia, 2020-2024

Table 5.26: Number of deaths by type of diseases, Malaysia, 2020-2024

Tahun Year	Demam denggi Dengue fever	Demam denggi berdarah Dengue haemorrhagic fever	Kolera Cholera	Malaria	Tifoid Typhoid
2020	-	145	1	5	-
2021	-	20	-	13	1
2022	-	56	-	11	2
2023	-	100	-	16	1
2024	-	117	-	3	1

Nota: * Mulai tahun 2019, penyakit Tifoid termasuk Paratyphi

Notes: Starting from year 2019, Typhoid also include Paratyphi

Sumber: Kementerian Kesihatan Malaysia

Source: Ministry of Health Malaysia

KOMPONEN COMPONENT 6

**PENGLIBATAN PENGURUSAN DAN
PERLINDUNGAN ALAM SEKITAR**

***ENVIRONMENTAL PROTECTION,
MANAGEMENT AND ENGAGEMENT***



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Jadual 6.1: Perbelanjaan perlindungan alam sekitar mengikut sektor, Malaysia, 2018-2022

Table 6.1: Environmental protection expenditure by sector, Malaysia, 2018-2022

RM '000					
Sektor	2018	2019	2020	2021	2022
Sector					
Jumlah	2,695,687	2,885,259	2,972,801	3,115,940	3,688,863
Total					
Pertanian, perhutanan & perikanan	45,518	32,671	34,917	47,098	48,575
Agriculture, forestry & fishing					
Perlombongan & pengkuarian	305,462	96,310	100,421	110,847	171,305
Mining & quarrying					
Pembuatan	1,820,762	2,181,290	2,382,378	2,486,838	2,921,250
Manufacturing					
Pembinaan	230,037	161,183	88,366	84,717	134,334
Construction					
Perkhidmatan	293,907	413,806	366,720	386,440	413,399
Services					
Bekalan elektrik, gas, wap & pendingin udara	18,287	24,684	18,682	21,138	27,905
Electricity, gas, steam & air conditioning supply					
Bekalan air, pembetungan, pengurusan sisa & aktiviti pemulihan	157,620	184,240	195,111	171,628	228,361
Water supply, sewerage, waste management & remediation activities					
Pengangkutan & penyimpanan	88,816	117,238	88,525	107,631	70,123
Transportation & storage					
Lain-lain perkhidmatan	29,184	87,645	64,399	86,043	87,010
Other services					

Nota: Berdasarkan kepada Banci Ekonomi 2023 - Perbelanjaan Perlindungan Alam Sekitar

Notes: Based on the Economic Census 2023 - Environmental Protection Expenditure

Jadual 6.2: Perbelanjaan modal perlindungan alam sekitar mengikut sektor, Malaysia, 2018-2022

Table 6.2: Capital expenditure on environmental protection by sector, Malaysia, 2018-2022

RM '000

Sektor <i>Sector</i>	2018	2019	2020	2021	2022
Jumlah <i>Total</i>	726,945	858,134	761,421	713,350	713,954
Pertanian, perhutanan & perikanan <i>Agriculture, forestry & fishing</i>	7,790	3,794	11,428	12,892	13,490
Perlombongan & pengkuarian <i>Mining & quarrying</i>	31,023	3,554	10,902	13,351	42,976
Pembuatan <i>Manufacturing</i>	551,430	638,683	610,804	527,997	559,928
Pembinaan <i>Construction</i>	87,621	30,301	24,374	21,058	16,389
Perkhidmatan <i>Services</i>	49,080	181,802	103,913	138,052	81,171
Bekalan elektrik, gas, wap & pendingin udara <i>Electricity, gas, steam & air conditioning supply</i>	1,597	5,672	4,278	7,627	16,131
Bekalan air, pembetungan, pengurusan sisa & aktiviti pemulihan <i>Water supply, sewerage, waste management & remediation activities</i>	30,473	62,966	27,672	36,860	54,514
Pengangkutan & penyimpanan <i>Transportation & storage</i>	15,899	67,090	50,718	65,882	4,784
Lain-lain perkhidmatan <i>Other services</i>	1,111	46,075	21,245	27,683	5,742

Nota: Berdasarkan kepada Banci Ekonomi 2023 - Perbelanjaan Perlindungan Alam Sekitar

Notes: Based on the Economic Census 2023 - Environmental Protection Expenditure

Jadual 6.3: Perbelanjaan operasi perlindungan alam sekitar mengikut sektor, Malaysia, 2018-2022

Table 6.3: Operating expenditure on environmental protection by sector, Malaysia, 2018-2022

RM '000					
Sektor	2018	2019	2020	2021	2022
Sector					
Jumlah					
Total	1,968,742	2,027,125	2,211,380	2,402,589	2,974,909
Pertanian, perhutanan & perikanan					
Agriculture, forestry & fishing	37,729	28,876	23,489	34,206	35,085
Perlombongan & pengkuarian					
Mining & quarrying	274,439	92,756	89,519	97,497	128,329
Pembuatan					
Manufacturing	1,269,332	1,542,607	1,771,574	1,958,840	2,361,322
Pembinaan					
Construction	142,416	130,882	63,992	63,658	117,946
Perkhidmatan					
Services	244,827	232,004	262,807	248,388	332,228
Bekalan elektrik, gas, wap & pendingin udara					
Electricity, gas, steam & air conditioning supply	16,690	19,012	14,407	13,512	11,775
Bekalan air, pembetungan, pengurusan sisa & aktiviti pemulihan					
Water supply, sewerage, waste management & remediation activities	127,147	121,274	167,438	134,767	173,847
Pengangkutan & penyimpanan					
Transportation & storage	72,917	50,148	37,807	41,749	65,339
Lain-lain perkhidmatan					
Other services	28,073	41,570	43,154	58,359	81,268

Nota: Berdasarkan kepada Banci Ekonomi 2023 - Perbelanjaan Perlindungan Alam Sekitar

Notes: Based on the Economic Census 2023 - Environmental Protection Expenditure

Jadual 6.4: Perbelanjaan perlindungan alam sekitar mengikut negeri dan jenis perbelanjaan, Malaysia, 2018-2022

Table 6.4: Environmental protection expenditure by state and type of expenditure, Malaysia, 2018-2022

RM '000

Negeri States	Tahun Year	Jumlah Total	Pengurusan pencemaran Pollution management	Perlindungan hidupan liar & habitat Protction of wildlife & habitats	Penilaian dan caj alam sekitar Environmental assessment and charges	Pengurusan sisa Waste management	Perbelanjaan lain untuk perlindungan alam sekitar Other environmental protection expenditure
Malaysia	2018	2,695,687	1,834,973	5,621	91,594	726,120	37,380
	2019	2,885,259	2,021,209	6,392	64,935	751,746	40,977
	2020	2,972,801	2,103,668	18,005	67,187	766,765	17,176
	2021	3,115,940	2,210,166	12,189	70,599	803,705	19,281
	2022	3,688,863	2,511,953	8,018	53,626	1,060,705	54,561
Johor	2018	326,505	228,340	448	7,720	83,744	6,252
	2019	678,474	493,438	258	6,979	160,943	16,856
	2020	808,783	636,030	3,011	7,862	159,478	2,402
	2021	862,398	660,433	4,289	9,754	184,388	3,535
	2022	876,012	658,800	1,331	5,890	197,965	12,026
Kedah	2018	94,199	72,394	10	1,174	20,276	346
	2019	113,265	84,293	-	1,402	27,003	567
	2020	95,790	61,017	164	857	33,558	194
	2021	138,481	90,088	171	1,567	36,049	606
	2022	151,454	104,867	42	1,073	40,036	5,436
Kelantan	2018	14,625	10,088	104	489	3,867	78
	2019	10,650	7,518	15	505	2,568	43
	2020	28,912	12,400	6,310	1,711	8,400	91
	2021	25,186	17,233	806	1,234	5,800	112
	2022	18,435	12,547	846	1,113	3,910	19
Melaka	2018	78,231	49,125	20	613	27,781	691
	2019	83,447	51,878	3	1,016	28,575	1,975
	2020	106,161	85,347	3	887	19,661	264
	2021	95,676	78,090	-	922	16,335	328
	2022	106,694	64,369	-	369	41,794	163
Negeri Sembilan	2018	292,266	257,383	91	1,577	32,641	574
	2019	91,805	59,889	45	1,595	28,806	1,470
	2020	84,634	57,933	551	3,290	22,066	794
	2021	97,961	67,819	569	4,536	24,222	815
	2022	83,068	45,714	224	3,067	33,898	166
Pahang	2018	200,640	117,970	252	2,601	79,293	524
	2019	155,698	138,099	136	2,608	14,296	560
	2020	170,315	155,927	77	1,463	12,148	700
	2021	205,747	182,567	22	1,603	20,844	711
	2022	328,843	161,935	19	1,126	165,527	236
Perak	2018	71,625	52,035	14	1,511	17,406	659
	2019	93,303	69,561	-	2,127	20,529	1,086
	2020	122,630	88,600	877	3,451	28,551	1,150
	2021	121,367	85,945	455	2,428	31,288	1,251
	2022	123,326	91,033	308	2,295	27,948	1,743

Jadual 6.4: Perbelanjaan perlindungan alam sekitar mengikut negeri dan jenis perbelanjaan, Malaysia, 2018-2022 (samb.)

Table 6.4: *Environmental protection expenditure by state and type of expenditure, Malaysia, 2018-2022 (cont'd)*

RM '000

Negeri States	Tahun Year	Jumlah Total	Pengurusan pencemaran <i>Pollution management</i>	Perlindungan hidupan liar & habitat <i>Protction of wildlife & habitats</i>	Penilaian dan caj alam sekitar <i>Environmental assessment and charges</i>	Pengurusan sisa <i>Waste management</i>	Perbelanjaan lain untuk perlindungan alam sekitar <i>Other environmental protection expenditure</i>
Perlis	2018	5,022	2,637	-	92	1,457	835
	2019	15,392	14,340	-	24	997	30
	2020	6,258	4,916	-	34	1,304	4
	2021	7,943	5,894	-	20	2,025	4
	2022	9,547	5,921	-	21	3,579	26
Pulau Pinang	2018	219,700	99,280	0	3,109	115,968	1,343
	2019	177,632	115,353	-	3,781	57,054	1,443
	2020	211,486	113,914	10	3,850	91,971	1,740
	2021	198,977	114,391	12	4,221	78,889	1,465
	2022	213,867	121,763	51	2,706	78,532	10,814
Sabah	2018	100,026	67,330	2,709	6,824	22,013	1,150
	2019	249,863	215,962	2,228	10,207	19,689	1,777
	2020	109,520	74,430	4,173	7,969	19,961	2,987
	2021	130,864	95,273	3,244	7,781	21,818	2,748
	2022	132,048	87,888	2,490	5,635	24,790	11,245
Sarawak	2018	100,026	67,330	2,709	6,824	22,013	1,150
	2019	251,732	150,348	1,471	5,551	90,865	3,497
	2020	235,613	138,970	815	9,068	85,902	858
	2021	239,412	137,636	543	14,045	84,967	2,222
	2022	258,780	144,906	981	14,678	92,000	6,215
Selangor	2018	500,592	328,075	-	22,477	136,923	13,118
	2019	543,455	345,275	-	18,968	174,370	4,843
	2020	530,436	322,866	18	12,244	192,452	2,858
	2021	557,525	363,703	23	7,196	184,977	1,626
	2022	995,649	789,766	24	7,240	197,315	1,303
Terengganu	2018	247,830	226,276	562	790	19,475	726
	2019	126,597	101,876	30	1,926	21,331	1,435
	2020	236,448	211,445	52	2,519	22,070	363
	2021	220,152	184,519	55	2,129	32,338	1,111
	2022	203,934	155,375	124	1,462	197,315	1,303
W.P. Kuala Lumpur	2018	325,150	191,305	676	38,749	85,935	8,485
	2019	292,570	173,051	2,206	8,193	103,730	5,389
	2020	223,988	139,231	1,945	11,914	68,125	2,772
	2021	221,029	125,313	1,999	13,112	77,863	2,742
	2022	184,083	66,107	1,579	6,925	107,656	1,816
W.P. Labuan	2018	6,517	768	-	54	5,681	15
	2019	1,144	278	-	39	822	6
	2020	1,366	423	-	30	912	-
	2021	2,586	945	-	-	1,641	-
	2022	2,789	909	-	-	1,880	-

Jadual 6.4: Perbelanjaan perlindungan alam sekitar mengikut negeri dan jenis perbelanjaan, Malaysia, 2018-2022 (samb.)

Table 6.4: Environmental protection expenditure by state and type of expenditure, Malaysia, 2018-2022 (cont'd)

RM '000

Negeri States	Tahun Year	Jumlah Total	Pengurusan pencemaran Pollution management	Perlindungan hidupan liar & habitat Protction of wildlife & habitats	Penilaian dan caj alam sekitar Environmental assessment and charges	Pengurusan sisa Waste management	Perbelanjaan lain untuk perlindungan alam sekitar Other environmental protection expenditure
W.P.	2018	2,120	303	-	48	1,755	14
Putrajaya	2019	232	50	-	13	169	-
	2020	462	220	-	38	205	-
	2021	635	318	-	50	262	5
	2022	335	53	-	26	256	-

Nota: Berdasarkan kepada Banci Ekonomi 2023 - Perbelanjaan Perlindungan Alam Sekitar

Notes: Based on the Economic Census 2023 - Environmental Protection Expenditure

Jadual 6.5: Perbelanjaan modal perlindungan alam sekitar mengikut negeri dan jenis perbelanjaan, Malaysia, 2018-2022

Table 6.5: Capital expenditure on environmental protection by state and type of expenditure, Malaysia, 2018-2022

RM '000

Negeri States	Tahun Year	Jumlah Total	Pengurusan pencemaran <i>Pollution management</i>	Perlindungan hidupan liar & habitat <i>Protction of wildlife & habitats</i>	Penilaian dan caj alam sekitar <i>Environmental assessment and charges</i>	Pengurusan sisa <i>Waste management</i>	Perbelanjaan lain untuk perlindungan alam sekitar <i>Other environmental protection expenditure</i>
Malaysia	2018	726,945	677,312	770	8,417	29,919	10,528
	2019	858,134	775,197	900	13,143	56,130	12,764
	2020	761,421	716,239	9,906	14,850	18,702	1,724
	2021	713,350	615,428	4,007	16,488	75,886	1,542
	2022	713,954	488,997	730	5,422	216,832	1,973
Johor	2018	74,292	70,035	407	2,238	1,378	235
	2019	138,470	123,100	92	1,435	2,158	11,683
	2020	179,231	168,219	2,752	1,350	6,782	128
	2021	195,199	158,045	2,710	3,359	30,916	168
	2022	209,782	169,572	136	137	39,828	110
Kedah	2018	12,121	11,639	-	66	401	15
	2019	31,473	30,118	-	3	1,352	-
	2020	18,371	16,366	63	56	1,884	1
	2021	33,555	28,368	72	93	4,981	40
	2022	46,142	43,230	-	103	2,458	350
Kelantan	2018	1,072	876	29	119	-	51
	2019	3,517	3,462	-	50	5	-
	2020	8,342	2,030	6,237	13	14	48
	2021	4,270	3,410	276	255	291	38
	2022	2,288	1,854	419	12	3	-
Melaka	2018	22,447	21,222	-	7	1,077	141
	2019	16,221	15,574	-	47	462	137
	2020	48,840	46,044	-	72	2,684	40
	2021	36,837	34,175	-	423	2,187	52
	2022	23,811	23,631	-	17	132	32
Negeri Sembilan	2018	222,506	221,448	44	32	969	13
	2019	13,437	12,513	-	41	821	62
	2020	10,123	8,956	267	157	578	165
	2021	18,591	15,773	276	144	2,099	300
	2022	1,406	442	-	-	961	3
Pahang	2018	23,706	22,537	206	952	12	-
	2019	44,571	43,156	64	777	535	39
	2020	23,885	22,575	33	335	747	195
	2021	12,003	10,130	11	139	1,472	251
	2022	145,814	6,656	-	19	139,107	31
Perak	2018	17,632	17,289	-	66	240	37
	2019	29,087	37,019	-	383	1,664	21
	2020	32,821	30,993	201	226	1,279	122
	2021	24,073	22,412	182	456	945	77
	2022	21,485	19,341	72	336	1,278	458

Jadual 6.5: Perbelanjaan modal perlindungan alam sekitar mengikut negeri dan jenis perbelanjaan, Malaysia, 2018-2022 (samb.)

Table 6.5: Capital expenditure on environmental protection by state and type of expenditure, Malaysia, 2018-2022 (cont'd)

RM '000

Negeri States	Tahun Year	Jumlah Total	Pengurusan pencemaran Pollution management	Perlindungan hidupan liar & habitat Protction of wildlife & habitats	Penilaian dan caj alam sekitar Environmental assessment and charges	Pengurusan sisa Waste management	Perbelanjaan lain untuk perlindungan alam sekitar Other environmental protection expenditure
Perlis	2018	1	-	-	-	-	1
	2019	11,710	11,710	-	-	-	-
	2020	820	815	-	-	5	-
	2021	869	629	-	20	220	-
	2022	28	24	-	4	1	-
Pulau Pinang	2018	35,828	35,336	0	108	252	132
	2019	30,367	29,620	-	94	608	44
	2020	44,019	42,681	-	745	568	25
	2021	30,920	29,587	-	969	334	29
	2022	26,916	22,585	31	331	3,943	27
Sabah	2018	40,613	38,692	62	1,434	395	30
	2019	186,456	182,704	302	2,530	860	59
	2020	29,379	26,863	104	1,105	1,283	24
	2021	40,830	35,747	204	1,168	3,444	267
	2022	36,674	33,120	72	285	2,484	713
Sarawak	2018	46,254	44,894	14	529	306	512
	2019	72,579	71,224	25	762	446	122
	2020	77,870	71,420	13	5,435	879	122
	2021	79,784	67,489	8	3,765	8,521	1
	2022	64,113	57,299	-	3,758	2,866	190
Selangor	2018	98,223	82,697	-	1,708	4,547	9,271
	2019	102,286	90,528	-	2,093	9,076	589
	2020	79,742	77,237	-	570	1,104	830
	2021	84,155	73,739	-	741	9,491	183
	2022	51,726	44,502	-	401	6,763	60
Terengganu	2018	7,855	7,713	7	-	44	90
	2019	6,701	6,410	-	248	44	-
	2020	101,039	100,258	-	109	664	8
	2021	52,460	52,321	-	53	60	26
	2022	49,806	49,759	-	18	29	-
W.P. Kuala Lumpur	2018	124,232	102,771	-	1,160	20,299	2
	2019	171,214	128,059	416	4,680	38,052	7
	2020	106,827	101,669	235	4,676	229	18
	2021	98,644	83,364	268	4,896	10,009	107
	2022	32,976	16,892	-	-	16,084	-
W.P. Labuan	2018	163	163	-	-	-	-
	2019	-	-	-	-	-	-
	2020	113	113	-	-	-	-
	2021	1,083	187	-	-	896	-
	2022	988	92	-	-	896	-

Jadual 6.5: Perbelanjaan modal perlindungan alam sekitar mengikut negeri dan jenis perbelanjaan, Malaysia, 2018-2022 (samb.)

Table 6.5: Capital expenditure on environmental protection by state and type of expenditure, Malaysia, 2018-2022 (cont'd)

RM '000							
Negeri	Tahun	Jumlah	Pengurusan pencemaran	Perlindungan hidupan liar & habitat	Penilaian dan caj alam sekitar	Pengurusan sisa	Perbelanjaan lain untuk perlindungan alam sekitar
States	Year	Total	Pollution management	Protction of wildlife & habitats	Environmental assessment and charges	Waste management	Other environmental protection expenditure
W.P.	2018	-	-	-	-	-	-
Putrajaya	2019	46	-	-	-	46	-
	2020	-	-	-	-	-	-
	2021	78	50	-	7	18	3
	2022	-	-	-	-	-	-

Nota: Berdasarkan kepada Banci Ekonomi 2023 - Perbelanjaan Perlindungan Alam Sekitar

Notes: Based on the Economic Census 2023 - Environmental Protection Expenditure

Jadual 6.6: Perbelanjaan operasi perlindungan alam sekitar mengikut negeri dan jenis perbelanjaan, Malaysia, 2018-2022

Table 6.6: Operating expenditure on environmental protection by state and type of expenditure, Malaysia, 2018-2022

RM '000

Negeri States	Tahun Year	Jumlah Total	Pengurusan pencemaran <i>Pollution management</i>	Perlindungan hidupan liar & habitat <i>Protction of wildlife & habitats</i>	Penilaian dan caj alam sekitar <i>Environmental assessment and charges</i>	Pengurusan sisa <i>Waste management</i>	Perbelanjaan lain untuk perlindungan alam sekitar <i>Other environmental protection expenditure</i>
Malaysia	2018	1,968,742	1,157,662	4,851	83,177	696,201	26,852
	2019	2,027,125	1,246,012	5,492	51,792	695,616	28,213
	2020	2,221,380	1,387,429	8,099	52,337	748,063	15,452
	2021	2,402,589	1,594,739	8,182	54,111	727,819	17,739
	2022	2,974,909	2,022,956	7,289	48,204	843,873	52,587
Johor	2018	252,212	158,305	42	5,482	82,366	6,017
	2019	540,004	370,338	166	5,543	158,785	5,175
	2020	629,551	467,811	259	6,512	152,696	2,274
	2021	667,199	502,388	1,579	6,394	153,471	3,367
	2022	666,230	489,229	1,195	5,753	158,138	11,916
Kedah	2018	82,079	60,755	10	1,108	19,875	331
	2019	81,792	54,175	-	1,399	25,650	567
	2020	77,419	44,651	100	801	31,674	193
	2021	94,926	61,720	98	1,475	31,068	565
	2022	105,312	61,637	42	970	37,578	5,086
Kelantan	2018	13,553	9,212	74	373	3,867	27
	2019	7,133	4,056	15	455	2,563	43
	2020	20,571	10,370	73	1,698	8,387	43
	2021	20,916	13,823	530	980	5,509	74
	2022	16,147	10,693	427	1,101	3,907	19
Melaka	2018	55,783	27,903	20	605	26,705	550
	2019	67,226	36,303	3	969	28,113	1,838
	2020	57,322	39,302	3	815	16,977	224
	2021	58,839	43,915	-	499	14,148	277
	2022	82,882	40,738	-	352	41,662	131
Negeri Sembilan	2018	69,760	35,935	47	1,545	31,672	561
	2019	78,368	47,376	45	1,555	27,985	1,408
	2020	74,511	48,977	284	3,133	21,487	629
	2021	79,369	52,045	293	4,392	22,124	515
	2022	81,663	45,272	224	3,067	32,937	163
Pahang	2018	176,934	95,433	46	1,649	79,281	524
	2019	111,127	94,943	72	1,831	13,760	520
	2020	146,430	133,351	44	1,128	11,401	505
	2021	193,744	172,437	12	1,464	19,372	460
	2022	183,029	155,279	19	1,107	26,420	205
Perak	2018	53,933	34,746	14	1,445	17,166	622
	2019	64,216	42,542	-	1,744	18,864	1,065
	2020	89,809	57,607	676	3,225	27,272	1,028
	2021	97,295	63,532	273	1,973	30,343	1,174
	2022	101,841	71,692	235	1,959	26,671	1,285

Jadual 6.6: Perbelanjaan operasi perlindungan alam sekitar mengikut negeri dan jenis perbelanjaan, Malaysia, 2018-2022 (samb.)

Table 6.6: Operating expenditure on environmental protection by state and type of expenditure, Malaysia, 2018-2022 (cont'd)

RM '000

Negeri States	Tahun Year	Jumlah Total	Pengurusan pencemaran <i>Pollution management</i>	Perlindungan hidupan liar & habitat <i>Protction of wildlife & habitats</i>	Penilaian dan caj alam sekitar <i>Environmental assessment and charges</i>	Pengurusan sisa <i>Waste management</i>	Perbelanjaan lain untuk perlindungan alam sekitar <i>Other environmental protection expenditure</i>
Perlis	2018	5,021	2,637	-	92	1,457	835
	2019	3,682	2,630	-	24	997	30
	2020	5,438	4,101	-	34	1,299	4
	2021	7,074	5,265	-	-	1,805	4
	2022	9,519	5,897	-	17	3,579	26
Pulau Pinang	2018	183,872	63,944	0	3,001	115,716	1,211
	2019	147,266	85,733	-	3,687	56,446	1,399
	2020	167,466	71,233	10	3,105	91,403	1,716
	2021	168,057	84,804	12	3,251	78,554	1,436
	2022	186,951	99,179	21	2,375	74,589	10,787
Sabah	2018	59,413	28,638	2,647	5,390	21,618	1,120
	2019	63,407	33,258	1,926	7,677	18,829	1,718
	2020	80,141	47,567	4,069	6,864	18,678	2,963
	2021	90,034	59,526	3,041	6,612	18,374	2,481
	2022	95,374	54,768	2,418	5,350	22,306	10,531
Sarawak	2018	164,385	86,770	720	3,236	71,600	2,060
	2019	179,153	19,123	1,447	4,789	90,419	3,375
	2020	157,743	67,549	802	3,633	85,023	736
	2021	159,628	70,147	535	10,280	76,445	2,222
	2022	194,667	87,607	381	10,920	89,133	6,025
Selangor	2018	402,370	245,378	-	20,769	132,375	3,847
	2019	441,169	254,748	-	16,875	165,294	1,253
	2020	450,695	245,628	18	11,674	191,347	2,028
	2021	473,370	289,964	23	6,455	175,486	1,442
	2022	943,923	745,263	24	6,839	190,553	1,243
Terengganu	2018	239,975	218,563	555	790	19,431	636
	2019	119,896	95,466	30	1,678	21,288	1,435
	2020	135,409	111,187	52	2,409	21,405	355
	2021	167,692	132,198	55	2,077	32,277	1,085
	2022	154,128	105,617	124	1,444	43,588	3,355
W.P. Kuala Lumpur	2018	200,918	88,533	676	37,589	65,637	8,483
	2019	121,356	44,992	1,790	3,514	65,678	5,382
	2020	117,161	37,562	1,710	7,238	67,896	2,755
	2021	122,386	41,949	1,731	8,216	67,855	2,635
	2022	151,107	49,215	1,579	6,925	91,573	1,816
W.P. Labuan	2018	6,354	605	-	54	5,681	15
	2019	1,144	278	-	39	822	6
	2020	1,235	310	-	30	912	-
	2021	1,503	759	-	-	745	-
	2022	1,801	817	-	-	984	-

Jadual 6.6: Perbelanjaan operasi perlindungan alam sekitar mengikut negeri dan jenis perbelanjaan, Malaysia, 2018-2022 (samb.)

Table 6.6: Operating expenditure on environmental protection by state and type of expenditure, Malaysia, 2018-2022 (cont'd)
RM '000

Negeri States	Tahun Year	Jumlah Total	Pengurusan pencemaran Pollution management	Perlindungan hidupan liar & habitat Protction of wildlife & habitats	Penilaian dan caj alam sekitar Environmental assessment and charges	Pengurusan sisa Waste management	Perbelanjaan lain untuk perlindungan alam sekitar Other environmental protection expenditure
W.P.	2018	2,120	303	-	48	1,755	14
Putrajaya	2019	186	50	-	13	123	-
	2020	462	220	-	38	205	-
	2021	558	268	-	43	244	2
	2022	335	53	-	26	256	-

Nota: Berdasarkan kepada Banci Ekonomi 2023 - Perbelanjaan Perlindungan Alam Sekitar
Notes: Based on the Economic Census 2023 - Environmental Protection Expenditure

Jadual 6.7: Peruntukan dan perbelanjaan pembangunan hutan, Malaysia, 2019-2023

Table 6.7: Forest development allocation and expenditure, Malaysia, 2019-2023

 RM juta
RM million

Negeri State	Bidang Kuasa Jurisdiction	Perkara Items	2019	2020	2021	2022	2023
Malaysia	Jumlah Total	Peruntukan Allocation	176.08	187.41	224.61	192.48	206.66
		Perbelanjaan Expenditure	139.29	147.00	181.18	172.55	187.68
	Negeri State	Peruntukan Allocation	116.11	108.27	135.25	119.64	121.76
		Perbelanjaan Expenditure	82.01	77.13	93.20	100.34	103.52
	Persekutuan Federal	Peruntukan Allocation	60.07	79.14	89.36	72.84	84.89
		Perbelanjaan Expenditure	57.18	69.88	87.99	72.20	84.15
Semenanjung Malaysia Peninsular Malaysia	Jumlah Total	Peruntukan Allocation	105.92	129.08	149.03	114.42	122.92
		Perbelanjaan Expenditure	84.01	97.43	114.57	105.11	105.15
	Negeri State	Peruntukan Allocation	79.36	84.64	104.52	81.62	93.31
		Perbelanjaan Expenditure	58.41	56.49	70.85	72.74	75.68
	Persekutuan Federal	Peruntukan Allocation	26.56	44.44	44.51	32.80	29.61
		Perbelanjaan Expenditure	25.60	40.95	43.72	32.37	29.47
Sabah	Jumlah Total	Peruntukan Allocation	33.26	45.33	53.99	51.42	54.85
		Perbelanjaan Expenditure	32.68	42.87	53.75	49.08	54.69
	Negeri State	Peruntukan Allocation	17.95	20.53	18.11	21.90	19.51
		Perbelanjaan Expenditure	17.40	19.34	18.07	19.56	19.37
	Persekutuan Federal	Peruntukan Allocation	15.31	24.80	35.88	29.52	35.33
		Perbelanjaan Expenditure	15.28	23.53	35.69	29.51	35.31
Sarawak	Jumlah Total	Peruntukan Allocation	36.90	13.00	21.59	26.64	28.89
		Perbelanjaan Expenditure	22.60	6.70	12.86	18.36	27.84
	Negeri State	Peruntukan Allocation	18.80	3.10	12.62	16.12	8.94
		Perbelanjaan Expenditure	6.20	1.30	4.28	8.04	8.47
	Persekutuan Federal	Peruntukan Allocation	18.20	9.90	8.97	10.52	19.95
		Perbelanjaan Expenditure	16.30	5.40	8.58	10.32	19.37

Sumber: Kementerian Sumber Asli dan Kelestarian Alam, Jabatan Perhutanan Semenanjung Malaysia, Jabatan Perhutanan Sabah dan Jabatan Hutan Sarawak

Source: Ministry of Natural Resources and Environmental Sustainability, Forestry Department Peninsular Malaysia, Sabah Forestry Department and Forest Department Sarawak

Jadual 6.8: Pembangunan sumber hutan dan pemeliharaan/ pemulihan alam sekitar, Semenanjung Malaysia, 2019-2023

Table 6.8: Forest resource development and environmental conservation/ rehabilitation, Peninsular Malaysia, 2019-2023

Hektar
Hectares

Sumber Resource	2019	2020	2021	2022	2023
Silvikultur dan pemulihan hutan <i>Silviculture and forest rehabilitation</i>					
Inventori selepas tebangan <i>Post felling inventory</i>	12,233	13,781	14,700	8,588	10,683
Rawatan memotong akar/Pepanjat <i>Cutting of lianas (CL)/Treatment</i>	-	-	-	-	1,720
Tanaman mengaya ¹ <i>Enrichment planting</i>	529	576	914	525	377
Kutipan biji benih ² (kg) <i>Seeds collections</i>	557	-	769	2	-
Perhutanan masyarakat <i>Community forestry</i>					
Hutan lipur dan hutan taman negeri (bil.) <i>Amenity forest and state park forest (no.)</i>	128	132	133	133	132
Hutan bandar (pokok) <i>Urban forestry (trees)</i>	-	-	-	-	-
Hutan pelajaran (bil.) <i>Education forest (no.)</i>	43	43	43	49	51
Tanaman tumbuhan ubatan <i>Planting of medicinal plants</i>	-	-	-	-	-
Pemeliharaan dan pemulihan alam sekitar <i>Environmental conservation and rehabilitation</i>					
Tanaman persisiran pantai ³ (pokok) <i>Coastal planting (trees)</i>	54,692	70,786	234,607	108,351	741,535

Sumber: Jabatan Perhutanan Semenanjung Malaysia
Source: Forestry Department Peninsular Malaysia

Nota/ Notes:

¹ Termasuk kawasan dirian hutan miskin, kawasan terosot dan lapang (bekas matau, bekas tapak kongsi, lorong penarik dan kawasan tanaman pindah)
Includes poor forest stand, degraded and open areas (former log landing areas, former logging camp sites, skid trails and shifting cultivation areas)

² Maklumat kutipan biji benih hanya meliputi Tapak Semaian Lentang
Seeds collection data from Lentang Nursery

³ Tanaman pokok bakau dan spesis yang sesuai di persisiran pantai negara
Planting of mangroves and other suitable tree species along the national coastline

Jadual 6.9: Pembangunan sumber hutan, Sabah, 2019-2023

Table 6.9: Forest resource development, Sabah, 2019-2023

	Hektar Hectares				
Sumber Source	2019	2020	2021	2022	2023
Tanaman mengaya Enrichment planting	63,132	63,773	65,509	67,362	68,760
Ladang hutan Forest plantation	290,762	274,741	280,756	286,523	295,588
Tanaman bakau Mangroves	20	24	167	15	2
Rawatan silvikultur Silviculture treatment	393,672	417,641	431,969	447,645	461,932

Sumber: Jabatan Perhutanan Sabah
Source: Sabah Forestry Department

Jadual 6.10: Pembangunan sumber hutan, Sarawak, 2019-2023

Table 6.10: Forest resource development, Sarawak, 2019-2023

	Hektar Hectares				
Sumber Source	2019	2020	2021	2022	2023
Ladang hutan Forest plantation	19,274	13,855	18,495	13,817	27,933
Tanaman bakau Mangroves	5	5	19	71	61
Tanaman kawasan pantai (bilangan pokok) Coastal plantation (number of trees)	3,128	2,899	20,774	109,197	142,788

Sumber: Jabatan Hutan Sarawak
Source: Forest Department Sarawak

Jadual 6.11: Pematuhan dalam penguatkuasaan pelepasan asap hitam mengikut jenis kenderaan, Malaysia, 2020-2024

Table 6.11: Compliance on enforcement of black smoke emission by type of vehicles, Malaysia, 2020-2024

Jenis kenderaan Type of vehicles	Peratus pematuhan Percentage of compliance				
	2020	2021	2022	2023	2024
Bas ¹ Buses	99.2	95.9	98.9	99.2	99.2
Kereta ² Cars	100.0	99.9	100.0	99.3	99.8
Lori ³ Lorries	96.2	98.5	97.7	98.1	97.9
Trak ringan Light trucks	98.1	99.4	99.2	98.2	98.0
Van Vans	96.8	98.5	99.3	99.2	98.4

Nota: ¹ Bas mini termasuk dalam kategori bas
Notes: Mini buses was included in buses category

Sumber: Jabatan Alam Sekitar
Source: Department of Environment

² Teksi termasuk dalam kategori kereta
Taxi was included in cars category

³ Lori kecil termasuk dalam kategori lori
Small lorries were included in lorries category

Jadual 6.12: Bilangan saman yang dikeluarkan bagi pelepasan asap hitam mengikut jenis kenderaan, Malaysia, 2020-2024

Table 6.12: Number of summonses issued for black smoke emission by type of vehicles, Malaysia, 2020-2024

Jenis kenderaan Type of vehicles	Bilangan saman Number of summons				
	2020	2021	2022	2023	2024
Jumlah Total	706	288	631	453	582
Bas ¹ Buses	9	16	14	12	15
Kereta ² Cars	-	1	-	2	2
Lori ³ Lorries	525	235	550	351	437
Trak ringan Light trucks	113	19	50	73	90
Van Vans	59	17	17	15	40

Nota: ¹ Bas mini termasuk dalam kategori bas
Notes: Mini buses was included in buses category

Sumber: Jabatan Alam Sekitar
Source: Department of Environment

² Teksi termasuk dalam kategori kereta
Taxi was included in cars category

³ Lori kecil termasuk dalam kategori lori
Small lorries were included in lorries category

Jadual 6.13: Status pematuhan oleh industri terhadap Peraturan-Peraturan Kualiti Alam Sekeliling (Udara Bersih) 2014, Malaysia, 2022-2024

Table 6.13: Compliance status by industries on Environmental Quality (Clean Air) Regulations 2014, Malaysia, 2022-2024

Kod MSIC MSIC code	Jenis industri Type of industries	Peratus pematuhan Percentage of compliance		
		2022	2023	2024
A	Pertanian, Perhutanan dan Perikanan Agriculture, Forestry and Fishing			
01	Pengeluaran tanaman dan ternakan, pemburuan dan aktiviti perkhidmatan berkaitan <i>Crops and animal production, hunting and related service activities</i>	100	100	100
03	Perikanan dan akuakultur <i>Fishing and aquaculture</i>	100	100	-
B	Perlombongan dan Pengkuarian Mining and Quarrying			
05	Perlombongan batu arang dan lignit <i>Mining of coal and lignite</i>	-	100	-
06	Pengekstrakan petroleum mentah dan gas asli <i>Extraction of crude petroleum and natural gas</i>	100	100	100
07	Perlombongan bijih besi <i>Mining of metal ores</i>	100	100	100
08	Perlombongan dan pengkuarian lain <i>Other mining and quarrying</i>	99	99	99
09	Aktiviti perkhidmatan sokongan perlombongan <i>Mining support service activities</i>	100	100	100
C	Pembuatan Manufacturing			
10	Pembuatan produk makanan <i>Manufacture of food products</i>	97	99	99
11	Pembuatan minuman <i>Manufacture of beverages</i>	100	100	100
12	Pembuatan produk tembakau <i>Manufacture of tobacco products</i>	100	100	100
13	Pembuatan tekstil <i>Manufacture of textiles</i>	99	99	98
14	Pembuatan pakaian <i>Manufacture of wearing apparel</i>	100	100	100
15	Pembuatan produk kulit dan barangan berkaitan <i>Manufacture of leather and related products</i>	100	-	100
16	Pembuatan kayu dan produk kayu dan gabus, kecuali perabot; pembuatan bagi artikel jerami dan bahan-bahan anyaman <i>Manufacture of wood and products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials</i>	97	99	99
17	Pembuatan kertas dan produk kertas <i>Manufacture of paper and paper products</i>	99	99	99
18	Percetakan dan penerbitan semula media rakaman <i>Printing and reproduction of recorded media</i>	99	99	99
19	Pembuatan kok dan produk petroleum bertapis <i>Manufacture of coke and refined petroleum products</i>	98	99	97
20	Pembuatan kimia dan produk kimia <i>Manufacture of chemicals and chemical products</i>	98	99	99

Jadual 6.13: Status pematuhan oleh industri terhadap Peraturan-Peraturan Kualiti Alam Sekeliling (Udara Bersih) 2014, Malaysia, 2022-2024 (samb.)

Table 6.13: Compliance status by industries on Environmental Quality (Clean Air) Regulations 2014, Malaysia, 2022-2024 (cont'd)

Kod MSIC MSIC code	Jenis industri Type of industries	Peratus pematuhan Percentage of compliance		
		2022	2023	2024
C	Pembuatan Manufacturing			
21	Pembuatan produk farmaseutikal asas, kimia perubatan dan botani <i>Manufacture of basic pharmaceuticals, medicinal chemical and botanical products</i>	100	100	100
22	Pembuatan produk getah dan plastic <i>Manufacture of rubber and plastic products</i>	97	99	99
23	Pembuatan produk galian bukan logam lain <i>Manufacture of other non-metallic mineral products</i>	99	98	98
24	Pembuatan logam asas <i>Manufacture of basic metals</i>	96	99	98
25	Pembuatan produk logam, kecuali mesin dan kelengkapan <i>Manufacture of fabricated metal products, except machinery and equipment</i>	97	99	98
26	Pembuatan komputer, produk elektronik dan optikal <i>Manufacture of computer, electronic and optical products</i>	99	99	99
27	Pembuatan kelengkapan elektrik <i>Manufacture of electrical equipment</i>	99	99	99
28	Pembuatan jentera dan peralatan t.t.t.l. <i>Manufacture of machinery and equipment n.e.c.</i>	99	99	99
29	Pembuatan kenderaan bermotor, treler dan semi treler <i>Manufacture of motor vehicles, trailers and semi-trailers</i>	99	99	100
30	Pembuatan kelengkapan pengangkutan lain <i>Manufacture of other transport equipment</i>	100	100	100
31	Pembuatan perabot <i>Manufacture of furniture</i>	93	99	100
32	Pembuatan lain <i>Other manufacturing</i>	97	99	97
33	Pembaikan dan pemasangan mesin dan kelengkapan <i>Repair and installation of machinery and equipment</i>	99	99	100
D	Bekalan Elektrik, Gas, Wap Dan Pendingin Udara Electricity, gas, steam and air conditioning supply services			
35	Bekalan elektrik, gas, wap dan pendingin udara <i>Electricity, gas, steam and air conditioning supply</i>	99	99	98
E	Bekalan Air; Pembentukan, Pengurusan Sisa Dan Aktiviti Pemulihan Water supply, sewerage, waste management and remediation service activities			
36	Penakungan, perawatan dan bekalan air <i>Water collection, treatment and supply</i>	100	100	93
37	Pembetulan <i>Sewerage</i>	-	-	98
38	Aktiviti pengumpulan, rawatan dan pelupusan sisa; pemulihan semula bahan <i>Waste collection, treatment and disposal activities; materials recovery</i>	99	100	99
39	Aktiviti pemulihan dan lain-lain perkhidmatan pengurusan sisa <i>Remediation activities and other waste management</i>	100	100	67
F	Pembinaan Construction			
41	Pembinaan bangunan <i>Construction of buildings</i>	100	100	100
42	Kejuruteraan awam <i>Civil engineering</i>	100	100	-

Jadual 6.13: Status pematuhan oleh industri terhadap Peraturan-Peraturan Kualiti Alam Sekeliling (Udara Bersih) 2014, Malaysia, 2022-2024 (samb.)

Table 6.13: Compliance status by industries on Environmental Quality (Clean Air) Regulations 2014, Malaysia, 2022-2024 (cont'd)

Kod MSIC MSIC code	Jenis industri Type of industries	Peratus pematuhan Percentage of compliance		
G	Perdagangan Borong Dan Runcit, Pembaikan Kenderaan Bermotor Dan Motosikal <i>Wholesale and retail trade, repair of motor vehicles and motorcycles</i>	2022	2023	2024
45	Perdagangan borong dan runcit dan pembaikan kenderaan bermotor dan motosikal <i>Wholesale and retail trade and repair pf motor vehicles and motorcycles</i>	100	99	100
46	Perdagangan borong kecuali kenderaan bermotor dan motosikal <i>Wholesale trade, except pf motor vehicles and motorcycles</i>	100	100	100
47	Perdagangan runcit kecuali kenderaan bermotor dan motosikal <i>Retail trade, except pf motor vehicles and motorcycles</i>	100	-	100
H	Pengangkutan Dan Penyimpanan <i>Transportation and storage</i>			
49	Pengangkutan darat dan pengangkutan melalui saliran paip <i>Land transport and transport via pipelines</i>	100	100	-
52	Penggudangan dan aktiviti sokongan untuk pengangkutan <i>Warehousing and support activities for transportation</i>	100	100	99
I	Penginapan Dan Aktiviti Perkhidmatan Makanan Dan Minuman <i>Accommodation and food service activities</i>			
55	Penginapan <i>Accommodation</i>	99	99	99
56	Aktiviti perkhidmatan makanan dan minuman <i>Food and beverage service activities</i>	100	-	-
J	Maklumat Dan Komunikasi <i>Information and communication</i>			
61	Telekomunikasi <i>Telecommunications</i>	100	100	100
K	Aktiviti Kewangan Dan Insurans/Takaful <i>Financial and insurance/ takaful activities</i>			
64	Aktiviti perkhidmatan kewangan, kecuali insurans/takaful dan tabungan pencen <i>Financial service activities, except insurance/ takaful and pension funding</i>	100	-	-
66	Aktiviti sokongan kepada perkhidmatan kewangan dan aktiviti insurans/ takaful <i>Activities auxiliary to financial service and insurance/ takaful activities</i>	-	-	100
L	Aktiviti Hartanah <i>Real estate activities</i>			
68	Aktiviti Hartanah <i>Real estate activities</i>	-	100	100
M	Aktiviti Profesional, Saintifik dan Teknikal <i>Professional, scientific and technical activities</i>			
71	Aktiviti arkitek dan kejuruteraan; ujian teknikal dan analisis <i>Architectural and engineering activities; technical testing and analysis</i>	100	99	100
72	Penyelidikan dan pembangunan saintifik <i>Scientific research and development</i>	100	100	100
N	Aktiviti Pentadbiran dan Khidmat Sokongan <i>Administrative and support service activities</i>			
79	berkaitan <i>Travel agency, tour operator, reservation service and related activities</i>	100	100	100
82	Aktiviti pengurusan pejabat, sokongan pejabat dan sokongan perniagaan lain <i>Office administrative, office support and other business support activities</i>	100	-	-

Jadual 6.13: Status pematuhan oleh industri terhadap Peraturan-Peraturan Kualiti Alam Sekeliling (Udara Bersih) 2014, Malaysia, 2022-2024 (samb.)

Table 6.13: Compliance status by industries on Environmental Quality (Clean Air) Regulations 2014, Malaysia, 2022-2024 (cont'd)

Kod MSIC MSIC code	Jenis industri Type of industries	Peratus pematuhan Percentage of compliance		
		2022	2023	2024
P	Pendidikan Education			
85	Pendidikan Education	-	100	100
Q	Aktiviti Kesihatan Kemanusiaan dan Kerja Sosial Human health and social work activities			
86	Aktiviti kesihatan kemanusiaan Human health activities	100	100	99
S	Aktiviti Perkhidmatan Lain Other service activities			
94	Aktiviti keahlian organisasi Activities of membership organizations	100	100	100
95	Pembaikan komputer dan barangan persendirian dan isi rumah Repair of computers and personal and household goods	100	-	-
96	Aktiviti perkhidmatan persendirian lain Other personal service activities	83	100	100

Sumber: Jabatan Alam Sekitar
Source: Department of Environment

Nota: Mulai 2022, pengkelasan industri disusun berdasarkan kod Piawaian Klasifikasi Industri Malaysia 2008 versi 1.0
Notes: Starting 2022, the industry classification is based on the Malaysia Standard Industrial Classification 2008 code version 1.0

Jadual 6.14: Pendakwaan kesalahan bagi pencemaran air, Malaysia, 2020-2024

Table 6.14: Offences prosecution for water pollution, Malaysia, 2020-2024

Akta Act	2020	2021	2022	2023	2024
Jumlah <i>Total</i>	229	168	314	251	232
PPKAS (EP) 2009 <i>EQR (IE) 2009</i>	75	64	181	131	94
PPKAS (K) 2009 <i>EQR (S) 2009</i>	7	5	4	6	3
Seksyen 25 AKAS 1974 <i>Section 25 EQA 1974</i>	15	11	2	8	15
Seksyen 16 AKAS 1974 <i>Section 16 EQA 1974</i>	58	32	74	43	55
Seksyen 27 AKAS 1974 <i>Section 27 EQA 1974</i>	-	-	-	-	-
Seksyen 34A (7) AKAS 1974 <i>Section 34A (7) EQA 1974</i>	69	45	51	49	50
PPKAS (KPSPSPKT) 2009 <i>EQR (PCSWTSL) 2009</i>	5	11	2	14	15

Nota: AKAS - Akta Kualiti Alam Sekeliling
Notes: EQA - Environmental Quality Act

Sumber: Jabatan Alam Sekitar
Source: Department of Environment

EP - Efluen Perindustrian
IE - Industrial Effluents

PPKAS - Peraturan-peraturan Kualiti Alam Sekeliling
EQR - Environmental Quality Regulations

K - Kumbahan
S - Sewarage

KPSPSPKT - Kawalan Pencemaran daripada Stesen Pemindahan Sisa Pepejal dan Kambus Tanah
PCSWTSL - Control of Pollution from Waste Transfer Station and Landfill

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PERBANDINGAN ANTARA NEGARA – PELEPASAN GAS RUMAH KACA

COMPARISON BETWEEN COUNTRIES – GREEN HOUSE GASES (GHG)



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Jadual 7.1: Jumlah Pelepasan GHG tidak termasuk LULUCF untuk tahun 2005, 2019 dan 2021

Table 7.1: Total GHG Emissions Excluding LULUCF for the year 2005, 2019 and 2021

 Kilo tan (KT)
Kilo tonne

Negara Country	Pelepasan (CO ₂ eq.) Emissions (CO ₂ eq.)		
	2005	2019	2021
Malaysia	255,507.41	327,363.79	327,672.37
German Germany	984,986.97	794,633.67	760,358.01
Jepun Japan	1,377,463.88	1,207,742.42	1,168,094.47
United Kingdom of Great Britain and Northern Ireland	699,595.39	453,233.65	429,489.47
Amerika Syarikat United States of America	7,477,358.36	6,617,916.88	6,340,228.29

Nota/ Notes: LULUCF - Land Use, Land-Use Change and Forestry

Jadual 7.2: Jumlah Pelepasan GHG Tenaga untuk tahun 2005, 2019 dan 2021

Table 7.2: Total GHG Emissions Energy for the year 2005, 2019 and 2021

 Kilo tan (KT)
Kilo tonne

Negara Country	Pelepasan (CO ₂ eq.) Emissions (CO ₂ eq.)		
	2005	2019	2021
Malaysia	205,464.65	261,393.21	259,666.83
German Germany	832,818.94	671,197.65	642,350.64
Jepun Japan	1,228,830.82	1,055,453.27	1,014,950.14
United Kingdom of Great Britain and Northern Ireland	550,289.90	352,680.36	334,967.71
Amerika Syarikat United States of America	6,351,529.16	5,460,638.45	5,196,583.32

Sumber/ Source:

Malaysia - The time-series data has been revised based on reported in Malaysia First Biennial Transparency Report (BTR1)

 Negara lain / Other countries - https://di.unfccc.int/time_series

Jadual 7.3: Jumlah Pelepasan GHG IPPU untuk tahun 2005, 2019 dan 2021

Table 7.3: Total GHG Emissions IPPU for the year 2005, 2019 and 2021

Kilo tan (KT)
Kilo tonne

Negara Country	Pelepasan (CO ₂ eq.) Emissions (CO ₂ eq.)		
	2005	2019	2021
Malaysia	15,060.35	32,544.89	37,028.35
German Germany	74,091.10	59,534.42	57,180.43
Jepun Japan	87,081.51	101,078.22	103,258.47
United Kingdom of Great Britain and Northern Ireland	49,694.71	35,713.02	32,326.75
Amerika Syarikat United States of America	356,056.54	366,822.71	376,382.97

Nota: Notes: IPPU - Industrial Processes and Product Use

Jadual 7.4: Jumlah Pelepasan GHG Pertanian untuk tahun 2005, 2019 dan 2021

Table 7.4: Total GHG Emissions Agriculture for the year 2005, 2019 and 2021

Kilo tan (KT)
Kilo tonne

Negara Country	Pelepasan (CO ₂ eq.) Emissions (CO ₂ eq.)		
	2005	2019	2021
Malaysia	10,456.28	7,804.10	7,310.04
German Germany	59,623.26	58,525.01	56,332.89
Jepun Japan	34,527.66	31,990.59	32,174.35
United Kingdom of Great Britain and Northern Ireland	46,420.54	43,847.60	43,090.47
Amerika Syarikat United States of America	577,719.13	614,462.11	598,099.06

Sumber/ Source:

Malaysia - The time-series data has been revised based on reported in Malaysia First Biennial Transparency Report (BTR1)

Negara lain / Other countries - https://di.unfccc.int/time_series

Jadual 7.5: Jumlah Pelepasan GHG Sisa untuk tahun 2005, 2019 dan 2021

Table 7.5: Total GHG Emissions Waste for the year 2005, 2019 and 2021

 Kilo tan (KT)
Kilo tonne

Negara Country	Pelepasan (CO ₂ eq.) Emissions (CO ₂ eq.)		
	2005	2019	2021
Malaysia	24,526.12	25,621.59	23,667.15
German Germany	18,453.67	5,376.59	4,494.05
Jepun Japan	27,023.88	19,220.33	17,711.50
United Kingdom of Great Britain and Northern Ireland	53,190.24	20,992.67	19,104.54
Amerika Syarikat United States of America	192,053.53	175,993.61	169,162.94

Jadual 7.6: Jumlah Pelepasan GHG LULUCF untuk tahun 2005, 2019 dan 2021

Table 7.2: Total GHG Emissions LULUCF for the year 2005, 2019 and 2021

 Kilo tan (KT)
Kilo tonne

Negara Country	Pelepasan (CO ₂ eq.) Emissions (CO ₂ eq.)		
	2005	2019	2021
Malaysia	-190,717.74	-209,290.63	-212,284.33
German Germany	7,832.48	-6,822.26	3,998.40
Jepun Japan	-88,841.24	-50,699.93	-51,694.59
United Kingdom of Great Britain and Northern Ireland	3,481.67	1,829.37	1,164.27
Amerika Syarikat United States of America	-781,094.62	-704,045.09	-754,225.03

Nota/ Notes: LULUCF - Land Use, Land-Use Change and Forestry

Sumber/ Source:

Malaysia - The time-series data has been revised based on reported in Malaysia First Biennial Transparency Report (BTR1)

 Negara lain / Other countries - https://di.unfccc.int/time_series

Jadual 7.1: Jumlah Pelepasan GHG termasuk LULUCF untuk tahun 2005, 2019 dan 2021

Table 7.1: Total GHG Emissions including LULUCF for the year 2005, 2019 and 2021

Kilo tan (KT)
Kilo tonne

Negara Country	Pelepasan (CO ₂ eq.) Emissions (CO ₂ eq.)		
	2005	2019	2021
Malaysia	64,789.67	118,073.16	115,388.04
German Germany	992,819.45	787,811.41	764,356.41
Jepun Japan	1,288,622.63	1,157,042.48	1,116,399.87
United Kingdom of Great Britain and Northern Ireland	703,077.06	455,063.02	430,653.74
Amerika Syarikat United States of America	6,696,263.74	5,913,871.79	5,586,003.26

Nota/ Notes: LULUCF - Land Use, Land-Use Change and Forestry

Sumber/ Source:

Malaysia - The time-series data has been revised based on reported in Malaysia First Biennial Transparency Report (BTR1)

Negara lain / Other countries - https://di.unfccc.int/time_series

LAMPIRAN

APPENDICES



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Framework for the Development of Environment Statistics (FDES) dan hubungkait dengan rangka kerja Daya Penggerak-Tekanan-Keadaan-Impak-Respon (DPSIR)

The FDES and its relationship with the Driving Force-Pressure-State-Impact-Response (DPSIR) framework



Daya Penggerak:	Sosio-ekonomi dan sosio-kultur yang memacu aktiviti manusia bagi meningkatkan atau mengurangkan tekanan terhadap alam sekitar
<i>Driving Force:</i>	<i>The socioeconomic and sociocultural forces driving human activities, which increase or mitigate pressures on environment</i>
Tekanan:	Tekanan aktiviti manusia kepada alam sekitar
<i>Pressure:</i>	<i>The stresses that human activities place in the environment</i>
Keadaan:	Situasi terkini alam sekitar
<i>State:</i>	<i>The current condition of environment</i>
Impak:	Kesan degradasi alam sekitar
<i>Impact:</i>	<i>The effects of environmental degradation</i>
Respon:	Tindak balas oleh masyarakat terhadap keadaan alam sekitar
<i>Response:</i>	<i>Responses by society to the environmental situation</i>

Sumber: Framework for the Development of Environment Statistics (FDES 2013)
Source:

Punca dan kesan bahan pencemar udara kepada manusia dan tumbuhan*Sources and effects of air pollutants on human and plants*

Bahan pencemar udara <i>Air pollutant</i>	Punca <i>Source</i>	Kesan kepada kesihatan manusia dan ekologi <i>Human health and ecological effects</i>
Ozon (O ₃) <i>Ozone</i>	Motosikal dua lejang, kenderaan bermotor dan punca-punca industri <i>Two stroke motor cycles, motor vehicles and industrial sources</i>	Manusia/Human Menjejaskan fungsi pernafasan dan penurunan prestasi atlet yang melakukan senaman lasak dan bahaya penyakit barah kulit <i>Impairment of respiratory function and decreasing performance by some athletes exercising heavily and skin cancer risks</i> Tumbuhan/Plants Memusnahkan tumbuhan dan mengurangkan pengeluaran tanaman <i>Damage vegetation and reduces crop production</i>
Plumbum (Pb) <i>Lead</i>	Sektor pengangkutan <i>Transport sector</i>	Manusia/Human Pendedahan yang berlarutan boleh mengakibatkan gangguan sistem saraf <i>Long-term exposure can lead to nervous disorders</i>
Karbon Monoksida (CO) <i>Carbon Monoxide</i>	Sektor pengangkutan <i>Transport sector</i>	Manusia/Human Menjejaskan mereka yang merokok dan yang mengidap masalah peredaran darah dan anemia <i>Affects smokers and people with circulatory and anaemic problems</i>
Sulfur Dioksida (SO ₂) <i>Sulphur Dioxide</i>	Industri minyak dan gas, pengeluaran tenaga, pembakaran arang, proses industri dan industri berasaskan pembakaran <i>Oil and gas industry, energy production, coal burning, industrial combustion and industrial process</i>	Manusia/Human Menambahkan derita pesakit yang mengidap asma dan bronkitis <i>Aggravates asthmatic and bronchitis patients</i> Tumbuhan/Plants Memusnahkan tumbuhan <i>Damages vegetation</i>
Nitrogen Dioksida (NO ₂) <i>Nitrogen Dioxide</i>	Pengangkutan, penjaan kuasa dan industri berasaskan pembakaran <i>Transport, power generation and industrial combustion</i>	Manusia/Human Menjejaskan fungsi pernafasan <i>Affects respiratory function</i> Tumbuhan/Plants Menyekat pertumbuhan tanaman <i>Suppresses vegetation growth</i>
Habuk Halus (PM ₁₀) <i>Particulate Matter</i>	Pembakaran terbuka <i>Open burning</i>	Manusia/Human Melemahkan fungsi pernafasan <i>Impairs respiratory function</i> Tumbuhan/Plants Memusnahkan tumbuhan <i>Damages vegetation</i>

Sumber: Kementerian Kesihatan Malaysia
Source: Ministry of Health Malaysia

Perbandingan nilai IPU dengan tahap pencemaran dan kawalan kesihatan

Comparison of API values with level of pollution and health measures

Indeks Pencemaran Udara (IPU) <i>Air Pollutant Index (API)</i>	Status	Tahap pencemaran <i>Level of pollution</i>	Kawalan kesihatan <i>Health measures</i>
0 – 50	Baik	Pencemaran rendah yang tidak ada kesan buruk terhadap kesihatan	Tidak ada sekatan aktiviti bagi semua lapisan orang. Amalkan gaya hidup yang sihat seperti tidak merokok, kerap bersenam dan mengamalkan pemakanan yang sesuai
	Good	<i>Low pollution and has no ill-effects on health</i>	<i>No restriction of activities for all groups of people. To practice healthy lifestyle e.g. not to smoke, exercise regularly and to observe proper nutrition</i>
51 – 100	Sederhana	Pencemaran sederhana dan tidak ada kesan buruk terhadap kesihatan	Tidak ada sekatan aktiviti bagi semua lapisan orang. Amalkan gaya hidup yang sihat seperti tidak merokok, kerap bersenam dan mengamalkan pemakanan yang sesuai
	Moderate	<i>Moderate pollution and has no ill-effects on health</i>	<i>No restriction of activities for all groups of people. To practice healthy lifestyle e.g. not to smoke, exercise regularly and to observe proper nutrition</i>
101 – 200	Tidak Sihat	Tanda-tanda sederhana yang menyebabkan bertambah teruk di kalangan orang berisiko tinggi, iaitu mereka yang menghidap sakit jantung dan paru-paru	Sekatan aktiviti kegiatan luar terhadap bagi orang yang berisiko tinggi. Penduduk amnya perlu mengurangkan aktiviti yang lasak
	Unhealthy	<i>Mild aggravation of symptoms among high risk persons, i.e those with heart or lung disease</i>	<i>Restriction of outdoor activities for high risk persons. Population should reduce vigorous outdoor activity</i>
201 – 300	Sangat Tidak Sihat	Tanda-tanda ketara yang menyebabkan bertambah teruk dan toleransi senaman rendah di kalangan orang yang menghidap sakit jantung atau paru-paru	Warga tua dan orang yang menghidap penyakit jantung atau paru-paru dilarang keluar dan kurangkan aktiviti fizikal. Penduduk amnya mesti mengelakkan dari aktiviti luar yang lasak. Sesiapa yang menghadapi masalah kesihatan perlu merujuk kepada doktor
	Very Unhealthy	<i>Significant aggravation of symptoms and decreased exercise tolerance in person with heart or lung disease</i>	<i>Elderly and persons with known heart or lung disease should stay indoors and reduce physical activity. Population should avoid vigorous outdoor activity. Those with any health problems to consult doctor</i>
301 – 500	Berbahaya	Tanda-tanda yang menyebabkan bertambah teruk dan membahayakan kesihatan	Warga tua dan orang yang menghidap penyakit jantung atau paru-paru dilarang keluar dan kurangkan aktiviti lasak. Penduduk amnya mesti menghindari aktiviti luar yang lasak
	Hazardous	<i>Severe aggravation of symptoms and endangers health</i>	<i>Elderly and persons with existing heart or lung disease should stay indoors and reduce physical activity. General population should avoid vigorous outdoor activity</i>
Melebihi 500	Kecemasan	Tanda-tanda yang menyebabkan bertambah teruk dan membahayakan kesihatan	Penduduk amnya dinasihatkan mengikut peraturan oleh Majlis Keselamatan Negara dan sentiasa mengikut pengumuman melalui media massa
Above 500	Emergency	<i>Severe aggravation of symptoms and endangers health</i>	<i>General population are advised to follow the orders of the National Security Council and follow the announcements through the mass media</i>

Sumber: Kementerian Kesihatan Malaysia
Source: Ministry of Health Malaysia

Klasifikasi kualiti air berdasarkan Indeks Kualiti Air*Water quality classification based on Water Quality Index*

Parameter	Indeks Index		
	Bersih (B) Clean (C)	Sederhana Tercemar (ST) Slightly Polluted (SP)	Tercemar (T) Polluted (P)
Indeks Kualiti Air (IKA) <i>Water Quality Index (WQI)</i>	81 – 100	60 – 80	0 – 59
Keperluan Oksigen Biokimia (BOD ₅) <i>Biochemical Oxygen Demand</i>	91 – 100	80 – 90	0 – 79
Ammoniakal Nitrogen (NH ₃ -N) <i>Ammoniacal Nitrogen</i>	92 – 100	71 – 91	0 – 70
Pepejal Terampai (SS) <i>Suspended Solids</i>	76 – 100	70 – 75	0 – 69

Sumber: Jabatan Alam Sekitar
Source: Department of Environment

Klasifikasi Indeks Kualiti Air
Water Quality Index classification

Parameter	Unit	Kelas Class				
		I	II	III	IV	V
Ammoniakal Nitrogen (NH ₃ -N) <i>Ammoniacal Nitrogen</i>	mg/l	< 0.1	0.1 - 0.3	0.3 - 0.9	0.9 - 2.7	> 2.7
Keperluan Oksigen Biokimia (BOD ₅) <i>Biochemical Oxygen Demand</i>	mg/l	< 1	1 - 3	3 - 6	6 - 12	> 12
Keperluan Oksigen Kimia (COD) <i>Chemical Oxygen Demand</i>	mg/l	< 10	10 - 25	25 - 50	50 - 100	> 100
Oksigen Terlarut <i>Dissolved Oxygen</i>	mg/l	> 7	5 - 7	3 - 5	1 - 3	< 1
pH	-	> 7.0	6.0 - 7.0	5.0 - 6.0	< 5.0	< 5.0
Jumlah Pepejal Terampai (SS) <i>Total Suspended Solid</i>	mg/l	< 25	25 - 50	50 - 150	150 - 300	> 300
Indeks Kualiti Air (IKA) <i>Water Quality Index (WQI)</i>		> 92.7	76.5 - 92.7	51.9 - 76.5	31.0 - 51.9	< 31.0

Kelas air dan kegunaan
Water classes and uses

Kelas Class	Kegunaan Uses
Kelas I Class I	Pemuliharaan alam semula jadi <i>Conservation of natural environment</i>
	Bekalan Air I – Hampir tiada rawatan diperlukan <i>Water Supply I – Practically no treatment necessary</i>
	Perikanan I – Spesis akuatik yang sangat sensitif <i>Fishery I – Very sensitive aquatic species</i>
Kelas IIA Class IIA	Bekalan Air II – Memerlukan rawatan secara konvensional sahaja <i>Water Supply II – Conventional treatment required</i>
	Perikanan II – Spesis akuatik yang sensitif <i>Fishery II – Sensitive aquatic species</i>
Kelas IIB Class IIB	Kegunaan rekreasi yang melibatkan persentuhan badan dengan air <i>Recreational use with body contact</i>
Kelas III Class III	Bekalan Air III – Memerlukan rawatan yang ekstensif <i>Water Supply III – Extensive treatment required</i>
	Perikanan III – Spesis tertentu yang mempunyai nilai ekonomi biasa Bekalan air minum haiwan ternakan <i>Fishery III – Common, of economic value and tolerant species</i> <i>Livestock drinking</i>
Kelas IV Class IV	Pengairan <i>Irrigation</i>
Kelas V Class V	Tiada seperti di atas. <i>None of the above</i>

Sumber: Jabatan Alam Sekitar
Source: Department of Environment

Standard dan kriteria kualiti air marin*Marine water quality criteria and standards*

	Parameter	KELAS 1 CLASS 1	KELAS 2 CLASS 2	KELAS 3 CLASS 3	KELAS E CLASS E
	Kegunaan	Pemeliharaan, kawasan dilindungi, Taman Laut	Kehidupan laut, Perikanan, Terumbu Karang, Rekreasi dan Marikultur	Pelabuhan, Lapangan Minyak & Gas	Paya Bakau & Muara Sungai
	Uses	<i>Preservation, marine protected areas, Marine Parks</i>	<i>Marine Life, Fisheries, Coral Reefs, Recreational and Mariculture</i>	<i>Ports, Oil & Gas Fields</i>	<i>Mangroves, Estuarine & River-mouth Water</i>
1	Suhu (°C) Temperature	≤2 °C peningkatan terhadap ambien maksimum ≤2 °C increase over maximum ambient			
2	Oksigen Terlarut (mg/L) Dissolved Oxygen	>80% tepu >80% saturation	5	3	4
3	Jumlah Pepejal Terampai* (mg/L) Total Suspended Solid	25 mg/L atau ≤ 10% peningkatan dalam purata bermusim, yang mana lebih rendah 25 mg/L or ≤ 10% increase in seasonal average, whichever is lower	50 mg/L (25 mg/L) atau ≤ 10% peningkatan dalam purata bermusim, yang mana lebih rendah 50mg/L (25 mg/L) or ≤ 10% increase in seasonal average, whichever is lower	100 mg/L atau ≤ 10% peningkatan dalam purata bermusim, yang mana lebih rendah 100 mg/L or ≤ 10% increase in seasonal average, whichever is lower	100 mg/L atau ≤ 30% peningkatan dalam purata bermusim, yang mana lebih rendah 100 mg/L or ≤ 30% increase in seasonal average, whichever is lower
4	Minyak dan Gris (mg/L) Oil and Grease	0.01	0.14	5	0.14
5	Raksa*(µg/L) Mercury	0.04	0.16 (0.04)	50	0.5
6	Kadmium*(µg/L) Cadmium	0.5	2 (3)	10	2
7	Kromium (VI) (µg/L) Chromium	5	10	48	10
8	Kuprum (µg/L) Copper	1.3	2.9	10	2.9
9	Arsenik (III)* (µg/L) Arsenic	3	20(3)	50	20(3)
10	Plumbum(µg/L) Lead	4.4	8.5	50	8.5
11	Zink (µg/L) Zinc	15	50	100	50
12	Sianida(µg/L) Cyanide	2	7	20	7
13	Ammonia (tidak terion) (µg/L) Ammonia (unionized)	35	70	320	70
14	Nitrit(NO ₂) (µg/L) Nitrite (NO ₂)	10	55	1,000	55
15	Nitrat(NO ₃) (µg/L) Nitrate (NO ₃)	10	60	1,000	60
16	Fosfat(µg/L) Phosphate	5	75	670	75
17	Fenol (µg/L) Phenol	1	10	100	10
18	Tributyltin (TBT) (µg/L)	0.001	0.01	0.05	0.01
19	Faecal Coliform	70 faecal coliform 100mL ⁻¹	70 faecal coliform 100mL ⁻¹ & (70 faecal coliform 100mL ⁻¹)	200 faecal coliform 100mL ⁻¹	100 faecal coliform 100mL ⁻¹ & (70 faecal coliform 100mL ⁻¹)
20	Polycyclic Aromatic Hydrocarbon (PAHs) µg/L	100	200	1,000	1,000

Sumber: Jabatan Alam Sekitar

Source: Department of Environment

*Nilai Standard dan Kriteria Kualiti Air Marin (SKKAM) dalam kurungan digunakan untuk kawasan air marin yang menjadi sumber makanan laut
Marine Water Quality Criteria and Standard (MWQCS) in parentheses are for coastal and marine water areas where seafood for human consumption is applicable

Status kualiti air sungai mengikut stesen, Malaysia, 2022-2024*Water quality status by stations, Malaysia, 2022-2024*

Negeri State	Lembangan Basin	Sungai River	Nombor stesen Station number	Nilai IKA / WQI value			Kategori IKA/ WQI category (2024)
				2022	2023	2024	
Perlis	Sg. Perlis	Sg. Arau	1RPLS012	85	90	87	B/C
		Sg. Arau	1RPLS014	93	89	90	B/C
		Sg. Empangan Timah Tasoh	1RPLS015	96	95	95	B/C
		Sg. Jarum	1RPLS006	89	88	90	B/C
		Sg. Jernih	1RPLS004	95	91	91	B/C
		Sg. Jernih	1RPLS005	94	94	95	B/C
		Sg. Kok Mak	1RPLS007	88	86	85	B/C
		Sg. Korok	1RPLS013	74	79	75	ST/SP
		Sg. Ngulang	1RPLS002	93	88	87	B/C
		Sg. Pelarit	1RPLS008	96	96	97	B/C
		Sg. Perlis	1RPLS001	78	81	70	ST/SP
		Sg. Serai	1RPLS003	90	86	89	B/C
		Sg. Terusan Mada	1RPLS010	92	93	89	B/C
		Sg. Terusan Mada	1RPLS011	89	91	91	B/C
		Sg. Wang Kelian	1RPLS009	97	97	97	B/C
Kedah	Sg. Kedah	Sg. Ahning	1KKDH011	95	94	97	B/C
		Sg. Changlun	1KKDH016	87	86	87	B/C
		Sg. Janing	1KKDH007	97	97	97	B/C
		Sg. Kedah	1KKDH001	76	73	67	ST/SP
		Sg. Napoh	1KKDH017	90	88	87	B/C
		Sg. Padang Terap	1KKDH002	89	93	95	B/C
		Sg. Padang Terap	1KKDH003	90	87	91	B/C
		Sg. Padang Terap	1KKDH004	95	95	96	B/C
		Sg. Padang Terap	1KKDH009	78	86	80	ST/SP
		Sg. Padang Terap	1KKDH012	95	96	96	B/C
		Sg. Pedu	1KKDH005	94	95	94	B/C
		Sg. Pendang	1KKDH008	85	85	82	B/C
		Sg. Sintok	1KKDH018	95	92	90	B/C
		Sg. Tekai	1KKDH006	93	91	92	B/C
		Sg. Temin	1KKDH010	89	87	86	B/C
		Sg. Terusan Lengkuas	1KKDH014	92	93	95	B/C
		Sg. Terusan Mada Selatan	1KKDH013	90	91	90	B/C
		Sg. Terusan Tengah	1KKDH015	93	94	96	B/C
	Sg. Kerian	Sg. Kerian	1KKER001	96	95	95	B/C
	Sg. Kisap	Sg. Kisap	1KKSP001	97	96	97	B/C
	Sg. Kuah	Sg. Kuah	1KKUA001	81	69		

Status kualiti air sungai mengikut stesen, Malaysia, 2022-2024 (samb.)*Water quality status by stations, Malaysia, 2022-2024 (cont'd)*

Negeri State	Lembangan Basin	Sungai River	Nombor stesen Station number	Nilai IKA / WQI value			Kategori IKA/ WQI category (2024)
				2022	2023	2024	
Kedah	Sg. Merbok	Sg. Bakar Arang	1KMBK008	66	58	60	ST/SP
		Sg. Batu	1KMBK002	59	65	52	T/P
		Sg. Bongkok	1KMBK003	71	74	69	ST/SP
		Sg. Bukit Merah	1KMBK006	89	95	92	B/C
		Sg. Bukit Nanas	1KMBK011	97	98	97	B/C
		Sg. Korok	1KMBK009	66	64	70	ST/SP
		Sg. Merbok	1KMBK001	81	82	83	B/C
		Sg. Petani	1KMBK007	64	53	65	ST/SP
		Sg. Tok Pawang	1KMBK004	94	96	95	B/C
		Sg. Tok Pawang	1KMBK005	96	96	94	B/C
		Sg. Tupah	1KMBK010	97	98	98	B/C
		Sg. Chepir	1KMUD012	92	90	93	B/C
	Sg. Muda	Sg. Gunung Inas	1KMUD021	95	96	89	B/C
		Sg. Jerong	1KMUD002	73	77	75	ST/SP
		Sg. Jerong	1KMUD003	70	74	75	ST/SP
		Sg. Karangan	1KMUD009	93	87	84	B/C
		Sg. Ketil	1KMUD007	91	93	96	B/C
		Sg. Muda	1KMUD001	90	87	89	B/C
		Sg. Muda	1KMUD004	91	90	94	B/C
		Sg. Muda	1KMUD005	95	94	94	B/C
		Sg. Muda	1KMUD013	91	88	89	B/C
		Sg. Muda	1KMUD014	94	94	94	B/C
		Sg. Muda	1KMUD015	94	95	93	B/C
		Sg. Muda	1KMUD016	91	91	92	B/C
		Sg. Muda	1KMUD018	91	90	91	B/C
		Sg. Muda	1KMUD019	96	94	96	B/C
		Sg. Muda	1KMUD023	91	89	92	B/C
		Sg. Muda	1KMUD024	91	90	94	B/C
		Sg. Muda	1KMUD025	95	94	96	B/C
		Sg. Pegang	1KMUD011	97	97	97	B/C
		Sg. Sedim	1KMUD008	91	93	94	B/C
		Sg. Sedim	1KMUD017	93	93	94	B/C
		Sg. Tawar	1KMUD006	92	92	87	B/C
		Sg. Tawar	1KMUD010	94	91	94	B/C
		Sg. Tawar	1KMUD020	93	91		

Status kualiti air sungai mengikut stesen, Malaysia, 2022-2024 (samb.)*Water quality status by stations, Malaysia, 2022-2024 (cont'd)*

Negeri State	Lembangan Basin	Sungai River	Nombor stesen Station number	Nilai IKA / WQI value			Kategori IKA/ WQI category (2024)
				2022	2023	2024	
Kedah	Sg. Perai	Sg. Jarak	1KPRI018	69	71	73	ST/SP
		Sg. Jarak	1KPRI019	69	75	74	ST/SP
		Sg. Jarak	1KPRI024	71	69	72	ST/SP
		Sg. Keladi	1KPRI015	82	82	78	ST/SP
		Sg. Kulim	1KPRI014	78	81	83	B/C
		Sg. Kulim	1KPRI016	92	91	92	B/C
		Sg. Kulim	1KPRI017	94	88	93	B/C
		Sg. Kulim	1KPRI023	91	91	93	B/C
		Sg. Kulim	1KPRI025	94	88	93	B/C
		Sg. Seluang	1KPRI021	65	64	57	T/P
		Sg. Seluang Bawah	1KPRI020	66	64	63	ST/SP
	Sg. Ulu Melaka	Sg. Chenang	1KMLK006	77	84	76	ST/SP
		Sg. Melaka	1KMLK002	85	83	89	B/C
		Sg. Melaka	1KMLK003	91	93	92	B/C
		Sg. Melaka	1KMLK007	97	97	97	B/C
		Sg. Petang	1KMLK001	98	97	97	B/C
		Sg. Saga	1KMLK004	88	85	90	B/C
		Sg. Tuba	1KMLK005	97	96	96	B/C
P. Pinang	Sg. Bayan Lepas	Sg. Bayan Lepas	1PBLS003	69	71	74	ST/SP
		Sg. Tiram	1PBLS001	78	71	78	ST/SP
		Sg. Tiram	1PBLS002	71	67	62	ST/SP
	Sg. Jawi	Sg. Chempedak	1PJWI003	39	55	42	T/P
		Sg. Jawi	1PJWI001	57	54	52	T/P
		Sg. Junjong	1PJWI002	57	66	59	T/P
		Sg. Junjong	1PJWI004	58	53	49	T/P
		Sg. Junjong	1PJWI006	96	97	97	B/C
		Sg. Machang Bubok	1PJWI007	68	73	65	ST/SP
		Sg. Tengah	1PJWI005	47	63	55	T/P
		Sg. Ara	1PJRU006	75	77	75	ST/SP
	Sg. Juru	Sg. Juru	1PJRU001	66	63	62	ST/SP
		Sg. Juru	1PJRU012	70	65	53	T/P
		Sg. Kilang Ubi	1PJRU002	68	66	71	ST/SP
		Sg. Kilang Ubi	1PJRU003	68	67	72	ST/SP
		Sg. Kilang Ubi	1PJRU009	96	97	95	B/C
		Sg. Kilang Ubi	1PJRU010	61	54	60	ST/SP
		Sg. Kilang Ubi	1PJRU011	68	65	66	ST/SP

Status kualiti air sungai mengikut stesen, Malaysia, 2022-2024 (samb.)*Water quality status by stations, Malaysia, 2022-2024 (cont'd)*

Negeri State	Lembangan Basin	Sungai River	Nombor stesen Station number	Nilai IKA / WQI value			Kategori IKA/ WQI category (2024)
				2022	2023	2024	
P. Pinang	Sg. Juru	Sg. Pasir	1PJRU004	66	63	63	ST/SP
		Sg. Permatang Rawa	1PJRU008	55	64	56	T/P
		Sg. Permatang Rawa	1PJRU013	87	79	79	ST/SP
		Sg. Rambai	1PJRU005	56	50	46	T/P
		Sg. Rambai	1PJRU007	55	67	60	ST/SP
	Sg. Kerian	Sg. Kechil	1PKER002	91	91	92	B/C
		Sg. Kechil	1PKER005	84	85	86	B/C
		Sg. Kerian	1PKER003	87	88	90	B/C
		Sg. Kerian	1PKER004	92	92	91	B/C
		Sg. Kerian	1PKER006	89	87	90	B/C
		Sg. Kerian	1PKER009	82	82	83	B/C
		Sg. Kerian	1PKER014	85	84	85	B/C
	Sg. Kluang	Sg. Serdang	1PKER007	83	89	92	B/C
		Sg. Ara	1PKLU002	97	97	97	B/C
		Sg. Ara	1PKLU003	72	63	60	ST/SP
		Sg. Dua Besar	1PKLU005	67	63	63	ST/SP
		Sg. Kluang	1PKLU001	52	58	45	T/P
	Sg. Perai	Sg. Relau	1PKLU004	69	65	73	ST/SP
		Sg. Air Melintas	1PPRI007	60	64	59	T/P
		Sg. Jarak	1PPRI009	71	76	73	ST/SP
		Sg. Jarak	1PPRI011	74	69	74	ST/SP
		Sg. Jarak	1PPRI012	76	80	79	ST/SP
		Sg. Kereh	1PPRI006	57	60	48	T/P
		Sg. Kereh	1PPRI008	56	57	55	T/P
		Sg. Kereh	1PPRI024	64	62	63	ST/SP
		Sg. Kubang Semang	1PPRI005	68	74	63	ST/SP
		Sg. Perai	1PPRI003	62	67	80	ST/SP
		Sg. Perai	1PPRI004	62	65	61	ST/SP
		Sg. Pertama	1PPRI022	52	63	63	ST/SP
		Sg. Seluang Bawah	1PPRI010	67	62	58	T/P
	Sg. Pinang	Sg. Air Itam	1PPNG006	69	65	69	ST/SP
		Sg. Air Itam	1PPNG011	65	62	72	ST/SP
		Sg. Air Itam	1PPNG018	96	97	98	B/C
		Sg. Air Terjun	1PPNG019	97	97	97	B/C

Status kualiti air sungai mengikut stesen, Malaysia, 2022-2024 (samb.)*Water quality status by stations, Malaysia, 2022-2024 (cont'd)*

Negeri State	Lembangan Basin	Sungai River	Nombor stesen Station number	Nilai IKA / WQI value			Kategori IKA/ WQI category (2024)
				2022	2023	2024	
P. Pinang	Sg. Pinang	Sg. Batu Feringghi	1PPNG001	81	77	81	B/C
		Sg. Batu Feringghi	1PPNG002	96	97	97	B/C
		Sg. Dondang	1PPNG012	54	57	56	T/P
		Sg. Dondang	1PPNG013	58	56	58	T/P
		Sg. Dondang	1PPNG014	75	73	77	ST/SP
		Sg. Dondang	1PPNG015	73	76	79	ST/SP
		Sg. Dondang	1PPNG016	68	68	67	ST/SP
		Sg. Dondang	1PPNG017	61	66	74	ST/SP
		Sg. Jelutong	1PPNG010	68	63	72	ST/SP
		Sg. Pinang	1PPNG003	92	89	83	B/C
		Sg. Pinang	1PPNG008	61	50	51	T/P
		Sg. Pinang	1PPNG021	56	41	41	T/P
		Sg. Satu	1PPNG020	97	97	98	B/C
		Sg. Titi Kerawang	1PPNG004	63	57	57	T/P
Perak	Sg. Bernam	Sg. Bernam	1ABNM001	74	68	67	ST/SP
		Sg. Bernam	1ABNM002	63	67	68	ST/SP
		Sg. Bernam	1ABNM003	82	84	76	ST/SP
		Sg. Bernam	1ABNM004	93	90	90	B/C
		Sg. Bernam	1ABNM005	93	92	91	B/C
		Sg. Bernam	1ABNM006	96	96	96	B/C
		Sg. Gelinting	1ABNM015	96	97	92	B/C
		Sg. Inki	1ABNM012	97	97	97	B/C
		Sg. Slim	1ABNM007	95	94	93	B/C
		Sg. Slim	1ABNM008	95	94	93	B/C
		Sg. Slim	1ABNM011	91	92	90	B/C
		Sg. Trolak	1ABNM009	96	96	94	B/C
		Sg. Trolak	1ABNM010	95	95	95	B/C
		Sg. Trolak	1ABNM014	96	97	97	B/C
	Sg. Bruas	Sg. Bruas	1ABRU001	69	73	74	ST/SP
		Sg. Bruas	1ABRU004	95	95	96	B/C
		Sg. Bruas	1ABRU005	97	98	97	B/C
		Sg. Dandang	1ABRU006	95	95	95	B/C
		Sg. Licin	1ABRU007	97	97	97	B/C
		Sg. Rotan	1ABRU002	94	96	98	B/C
		Sg. Rotan	1ABRU003	83	86	84	B/C

Status kualiti air sungai mengikut stesen, Malaysia, 2022-2024 (samb.)*Water quality status by stations, Malaysia, 2022-2024 (cont'd)*

Negeri State	Lembangan Basin	Sungai River	Nombor stesen Station number	Nilai IKA / WQI value			Kategori IKA/ WQI category (2024)
				2022	2023	2024	
Perak	Sg. Kerian	Sg. Selama	1AKER011	86	89	90	B/C
		Sg. Selama	1AKER012	89	89	90	B/C
		Sg. Selama	1AKER016	97	97	98	B/C
		Sg. Semang	1AKER013	81	72	80	ST/SP
		Sg. Terusan Bagan Serai	1AKER015	93	94	94	B/C
	Sg. Kurau	Sg. Air Hitam	1AKRU007	97	96	97	B/C
		Sg. Ara	1AKRU001	94	96	97	B/C
		Sg. Ara	1AKRU006	97	97	98	B/C
		Sg. Kurau	1AKRU002	78	78	78	ST/SP
		Sg. Kurau	1AKRU003	79	82	82	B/C
		Sg. Kurau	1AKRU004	93	94	93	B/C
		Sg. Kurau	1AKRU005	90	92	92	B/C
	Sg. Perak	Sg. Batang Padang	1APRK003	87	86	88	B/C
		Sg. Batang Padang	1APRK006	96	96	97	B/C
		Sg. Batang Padang	1APRK009	90	91	90	B/C
		Sg. Behrang	1APRK077	98	97	98	B/C
		Sg. Berok	1APRK068	97	96	97	B/C
		Sg. Bidor	1APRK002	87	83	83	B/C
		Sg. Bidor	1APRK004	91	88	90	B/C
		Sg. Bidor	1APRK005	87	92	94	B/C
		Sg. Chenderiang	1APRK012	94	94	97	B/C
		Sg. Chenderiang	1APRK013	94	90	93	B/C
		Sg. Chepor	1APRK056	96	97	97	B/C
		Sg. Cuar	1APRK046	95	95	96	B/C
		Sg. Ibol	1APRK066	96	97	97	B/C
		Sg. Kampar	1APRK031	96	94	96	B/C
		Sg. Kampar	1APRK032	93	92	93	B/C
		Sg. Kangsar	1APRK043	94	92	93	B/C
		Sg. Kangsar	1APRK044	93	95	96	B/C
		Sg. Kangsar	1APRK079	97	97	98	B/C
		Sg. Kepayang	1APRK037	78	84	85	B/C
		Sg. Kepayang	1APRK038	78	84	86	B/C
		Sg. Kerbau	1APRK064	95	96	96	B/C
		Sg. Kerbau	1APRK078	91	95	95	B/C

Status kualiti air sungai mengikut stesen, Malaysia, 2020-2022 (samb.)*Water quality status by stations, Malaysia, 2020-2022 (cont'd)*

Negeri State	Lembangan Basin	Sungai River	Nombor stesen Station number	Nilai IKA / WQI value			Kategori IKA/ WQI category (2024)
				2022	2023	2024	
Perak	Sg. Perak	Sg. Kerdah	1APRK041	69	79	74	ST/SP
		Sg. Kerdah	1APRK053	86	89	83	B/C
		Sg. Kinjang	1APRK055	97	97	97	B/C
		Sg. Kinta	1APRK019	83	79	81	B/C
		Sg. Kinta	1APRK022	96	96	97	B/C
		Sg. Kinta	1APRK024	67	92	89	B/C
		Sg. Kinta	1APRK025	78	82	81	B/C
		Sg. Kinta	1APRK033	84	83	83	B/C
		Sg. Kinta	1APRK034	83	88	85	B/C
		Sg. Kinta	1APRK057	80	83	83	B/C
		Sg. Kinta	1APRK058	85	83	84	B/C
		Sg. Kinta	1APRK063	96	97	97	B/C
		Sg. Klah	1APRK014	90	92	94	B/C
		Sg. Klah	1APRK015	91	93	94	B/C
		Sg. Klian Baru	1APRK016	80	88	89	B/C
		Sg. Klian Baru	1APRK017	77	79	79	ST/SP
		Sg. Klian Gunong	1APRK081	96	97	97	B/C
		Sg. Kuang	1APRK042	85	88	87	B/C
		Sg. Manong	1APRK060	97	98	98	B/C
		Sg. Nyamok	1APRK052	74	73	72	ST/SP
		Sg. Pari	1APRK023	87	91	92	B/C
		Sg. Pari	1APRK028	83	85	85	B/C
		Sg. Pelus	1APRK039	89	89	87	B/C
		Sg. Pelus	1APRK040	87	90	87	B/C
		Sg. Perak	1APRK001	88	81	83	B/C
		Sg. Perak	1APRK018	92	89	90	B/C
		Sg. Perak	1APRK020	94	93	91	B/C
		Sg. Perak	1APRK045	95	95	95	B/C
		Sg. Perak	1APRK047	86	86	88	B/C
		Sg. Perak	1APRK048	94	94	95	B/C
		Sg. Perak	1APRK049	92	93	93	B/C
		Sg. Perak	1APRK051	94	93	95	B/C
		Sg. Perak	1APRK059	97	97	97	B/C
		Sg. Perak	1APRK065	95	95	95	B/C
		Sg. Perak	1APRK069	86	87	84	B/C
		Sg. Perak	1APRK070	93	93	92	B/C

Status kualiti air sungai mengikut stesen, Malaysia, 2020-2022 (samb.)*Water quality status by stations, Malaysia, 2020-2022 (cont'd)*

Negeri State	Lembangan Basin	Sungai River	Nombor stesen Station number	Nilai IKA / WQI value			Kategori IKA/ WQI category (2024)
				2022	2023	2024	
Perak	Sg. Perak	Sg. Perak	1APRK071	92	93	95	B/C
		Sg. Perak	1APRK072	94	95	95	B/C
		Sg. Perak	1APRK074	92	93	94	B/C
		Sg. Perak	1APRK080	97	96	97	B/C
		Sg. Perak	1APRK082	96	96	96	B/C
		Sg. Perak	1APRK086	96	97	97	B/C
		Sg. Pinji	1APRK021	77	79	80	ST/SP
		Sg. Pinji	1APRK036	79	79	79	ST/SP
		Sg. Pulau	1APRK067	97	97	97	B/C
		Sg. Raia	1APRK030	93	93	95	B/C
		Sg. Raia	1APRK035	89	91	90	B/C
		Sg. Rui	1APRK084	93	94	96	B/C
		Sg. Rui	1APRK085	88	85	92	B/C
		Sg. Seluang	1APRK050	62	66	68	ST/SP
		Sg. Serokai	1APRK026	77	79	78	ST/SP
		Sg. Serokai	1APRK027	87	89	91	B/C
		Sg. Sintang	1APRK054	67	64	68	ST/SP
		Sg. Sungkai	1APRK007	94	94	96	B/C
		Sg. Sungkai	1APRK008	91	89	89	B/C
		Sg. Sungkai	1APRK073	92	89	93	B/C
		Sg. Sungkai	1APRK075	93	90	93	B/C
		Sg. Sungkai Mati	1APRK010	67	69	67	ST/SP
		Sg. Sungkai Mati	1APRK011	89	92	92	B/C
		Sg. Tapah	1APRK076	96	97	97	B/C
		Sg. Teja	1APRK083	85	81	83	B/C
		Sg. Tesong	1APRK062	97	97	97	B/C
		Sg. Tumboh	1APRK029	76	76	78	ST/SP
		Sg. Woh	1APRK061	98	97	97	B/C
	Sg. Raja Hitam	Sg. Derhaka	1ARHT004	74	75	77	ST/SP
		Sg. Derhaka	1ARHT006	75	74	78	ST/SP
		Sg. Manjong	1ARHT001	87	88	86	B/C
		Sg. Manjong	1ARHT002	85	88	86	B/C
		Sg. Nyior	1ARHT007	97	98	98	B/C
		Sg. Raja Hitam	1ARHT003	78	75	80	ST/SP
		Sg. Raja Hitam	1ARHT005	78	71	82	B/C
		Sg. Raja Hitam	1ARHT008	30	47	75	ST/SP

Status kualiti air sungai mengikut stesen, Malaysia, 2020-2022 (samb.)*Water quality status by stations, Malaysia, 2020-2022 (cont'd)*

Negeri State	Lembangan Basin	Sungai River	Nombor stesen Station number	Nilai IKA / WQI value			Kategori IKA/ WQI category (2024)
				2022	2023	2024	
Perak	Sg. Sepetang	Sg. Batu Tegoh	1ASPT006	84	87	84	B/C
		Sg. Batu Tegoh	1ASPT007	91	88	92	B/C
		Sg. Batu Tegoh	1ASPT009	89	87	90	B/C
		Sg. Batu Tegoh	1ASPT012	97	97	97	B/C
		Sg. Batu Tegoh	1ASPT016	97	97	98	B/C
		Sg. Jana	1ASPT004	72	73	72	ST/SP
		Sg. Jana	1ASPT013	97	97	97	B/C
		Sg. Lidin	1ASPT008	84	86	84	B/C
		Sg. Limau	1ASPT014	96	96	96	B/C
		Sg. Malai	1ASPT002	77	75	79	ST/SP
		Sg. Malai	1ASPT019	73	73	77	ST/SP
		Sg. Nyior	1ASPT018	98	98	97	B/C
		Sg. Nyior	1ASPT020	92	96	92	B/C
		Sg. Sepetang	1ASPT001	72	76	78	ST/SP
		Sg. Sepetang	1ASPT003	83	84	88	B/C
		Sg. Temerloh	1ASPT010	95	96	94	B/C
		Sg. Temerloh	1ASPT011	92	93	88	B/C
		Sg. Trong	1ASPT015	94	96	95	B/C
		Sg. Trong	1ASPT017	97	97	97	B/C
	Sg. Wangi	Sg. Deralik	1AWGI001	74	75	74	ST/SP
		Sg. Deralik	1AWGI002	77	74	79	ST/SP
		Sg. Wangi	1AWGI003	75	84	82	B/C
		Sg. Wangi	1AWGI004	65	77	81	B/C
Selangor	Sg. Bernam	Sg. Bernam	2BBNM013	91	91	92	B/C
		Sg. Bernam	2BBNM016	90	91	93	B/C
		Sg. Dusun	2BBNM017	95	95	95	B/C
	Sg. Buloh	Sg. Buloh	2BBLH001	55	60	65	ST/SP
		Sg. Buloh	2BBLH002	51	48	66	ST/SP
		Sg. Buloh	2BBLH003	46	41	53	T/P
		Sg. Buloh	2BBLH004	45	59	67	ST/SP
		Sg. Buloh	2BBLH005	84	79	81	B/C
		Sg. Buloh	2BBLH006	50	48	67	ST/SP
	Sg. Klang	Sg. Ampang	2BKLG032	64	66	71	ST/SP
		Sg. Ampang	2BKLG042	81	83	85	B/C
		Sg. Anak Air Batu	2BKLG047	80	81	82	B/C
		Sg. Batu	2BKLG007	97	97	96	B/C
		Sg. Batu	2BKLG036	97	98	97	B/C

Status kualiti air sungai mengikut stesen, Malaysia, 2020-2022 (samb.)*Water quality status by stations, Malaysia, 2020-2022 (cont'd)*

Negeri State	Lembangan Basin	Sungai River	Nombor stesen Station number	Nilai IKA / WQI value			Kategori IKA/ WQI category (2024)
				2022	2023	2024	
Selangor	Sg. Klang	Sg. Damansara	2BKLG008	68	66	68	ST/SP
		Sg. Damansara	2BKLG009	66	64	68	ST/SP
		Sg. Damansara	2BKLG017	65	65	62	ST/SP
		Sg. Damansara	2BKLG055	70	68	70	ST/SP
		Sg. Damansara	2BKLG067	95	95	96	B/C
		Sg. Gombak	2BKLG020	97	97	97	B/C
		Sg. Gombak	2BKLG027	95	97	95	B/C
		Sg. Jinjang	2BKLG044	86	86	87	B/C
		Sg. Kerayong	2BKLG013	50	49	56	T/P
		Sg. Kerayong	2BKLG051	63	60	54	T/P
		Sg. Keroh	2BKLG030	97	97	97	B/C
		Sg. Klang	2BKLG005	96	96	95	B/C
		Sg. Klang	2BKLG006	91	90	71	ST/SP
		Sg. Klang	2BKLG016	77	68	65	ST/SP
		Sg. Klang	2BKLG022	61	64	59	T/P
		Sg. Klang	2BKLG023	63	66	57	T/P
		Sg. Klang	2BKLG024	66	66	61	ST/SP
		Sg. Klang	2BKLG034	64	70	61	ST/SP
		Sg. Klang	2BKLG050	60	65	58	T/P
		Sg. Kuyoh	2BKLG011	72	69	63	ST/SP
		Sg. Penchala	2BKLG019	60	66	61	ST/SP
		Sg. Penchala	2BKLG054	75	71	67	ST/SP
		Sg. Pusu	2BKLG021	78	75	74	ST/SP
		Sg. Rasau	2BKLG003	93	94	91	B/C
		Sg. Rumpit	2BKLG033	95	97	97	B/C
		Sg. Semelah	2BKLG025	90	91	84	B/C
	Sg. Langat	Sg. Anak Chuau	2BCHU004	94	94	94	B/C
		Sg. Balak	2BLGT025	71	74	68	ST/SP
		Sg. Batang Labu	2BLGT028	83	82	80	ST/SP
		Sg. Batang Labu	2BLGT030	81	79	73	ST/SP
		Sg. Batang Labu	2BLGT031	78	77	76	ST/SP
		Sg. Batang Labu	2BLGT032	79	80	79	ST/SP
		Sg. Batang Labu	2BLGT033	88	86	72	ST/SP
		Sg. Batang Labu	2BLGT035	91	88	88	B/C
		Sg. Chuau	2BCHU001	94	95	93	B/C
		Sg. Chuau	2BCHU002	94	93	94	B/C

Status kualiti air sungai mengikut stesen, Malaysia, 2022-2024 (samb.)*Water quality status by stations, Malaysia, 2022-2024 (cont'd)*

Negeri State	Lembangan Basin	Sungai River	Nombor stesen Station number	Nilai IKA / WQI value			Kategori IKA/ WQI category (2024)
				2022	2023	2024	
Selangor	Sg. Langat	Sg. Langat	2BLGT002	85	88	83	B/C
		Sg. Langat	2BLGT003	80	81	78	ST/SP
		Sg. Langat	2BLGT004	76	79	75	ST/SP
		Sg. Langat	2BLGT005	79	77	69	ST/SP
		Sg. Langat	2BLGT006	97	97	96	B/C
		Sg. Langat	2BLGT007	84	85	83	B/C
		Sg. Langat	2BLGT008	93	91	90	B/C
		Sg. Langat	2BLGT026	80	75	66	ST/SP
		Sg. Langat	2BLGT027	74	63	67	ST/SP
		Sg. Limau Manis	2BCHU003	82	75	82	B/C
		Sg. Rinching	2BLGT014	80	88	87	B/C
		Sg. Rinching	2BLGT015	94	97	95	B/C
		Sg. Semenyih	2BLGT010	85	86	86	B/C
		Sg. Semenyih	2BLGT011	84	86	81	B/C
		Sg. Semenyih	2BLGT012	89	86	86	B/C
		Sg. Sering	2BLGT034	80	81	83	B/C
	Sg. Selangor	Sg. Air Hitam	2BSEL002	74	73	75	ST/SP
		Sg. Air Hitam	2BSEL024	79	74	76	ST/SP
		Sg. Batang Kali	2BSEL003	93	91	90	B/C
		Sg. Guntong	2BSEL021	83	82	78	ST/SP
		Sg. Kanching	2BSEL007	93	94	94	B/C
		Sg. Kerling	2BSEL006	96	97	97	B/C
		Sg. Kundang	2BSEL012	77	77	77	ST/SP
		Sg. Rangkap	2BSEL016	97	97	96	B/C
		Sg. Rawang	2BSEL013	81	82	82	B/C
		Sg. Selangor	2BSEL001	80	79	81	B/C
		Sg. Selangor	2BSEL004	96	97	96	B/C
		Sg. Selangor	2BSEL005	96	97	96	B/C
		Sg. Selangor	2BSEL010	86	86	88	B/C
		Sg. Selangor	2BSEL011	91	90	92	B/C
		Sg. Selangor	2BSEL014	85	83	88	B/C
		Sg. Selangor	2BSEL015	96	97	96	B/C
		Sg. Selangor	2BSEL017	94	92	92	B/C
		Sg. Selangor	2BSEL018	88	84	92	B/C
		Sg. Selangor	2BSEL023	85	82	86	B/C

Status kualiti air sungai mengikut stesen, Malaysia, 2022-2024 (samb.)*Water quality status by stations, Malaysia, 2022-2024 (cont'd)*

Negeri State	Lembangan Basin	Sungai River	Nombor stesen Station number	Nilai IKA / WQI value			Kategori IKA/ WQI category (2024)
				2022	2023	2024	
Selangor	Sg. Selangor	Sg. Sembah	2BSEL009	80	80	83	B/C
		Sg. Sembah	2BSEL019	84	82	84	B/C
		Sg. Serendah	2BSEL008	95	95	95	B/C
	Sg. Sepang	Sg. Sepang	2BSPG001	88	90	86	B/C
		Sg. Sepang	2BSPG002	81	87	83	B/C
		Sg. Sepang	2BSPG003	83	82	80	ST/SP
	Sg. Tenggi	Sg. Tenggi	2BTGI001	72	77	70	ST/SP
		Sg. Tenggi	2BTGI002	96	96	97	B/C
		Sg. Tenggi	2BTGI003	82	78	74	ST/SP
		Sg. Tenggi	2BTGI004	95	95	95	B/C
W.P. Kuala Lumpur	Sg. Klang	Sg. Air Busuk	2WKLG041	52	42	46	T/P
		Sg. Batu	2WKLG028	64	69	64	ST/SP
		Sg. Batu	2WKLG056	72	67	63	ST/SP
		Sg. Batu	2WKLG061	78	65	69	ST/SP
		Sg. Belongkong	2WKLG040	65	78	74	ST/SP
		Sg. Bunos	2WKLG006	44	57	57	T/P
		Sg. Bunos	2WKLG039	71	68	70	ST/SP
		Sg. Bunos	2WKLG043	83	89	81	B/C
		Sg. Gombak	2WKLG018	67	67	63	ST/SP
		Sg. Gombak	2WKLG026	80	82	74	ST/SP
		Sg. Gombak	2WKLG060	70	71	64	ST/SP
		Sg. Jinjang	2WKLG014	67	67	67	ST/SP
		Sg. Jinjang	2WKLG031	70	68	69	ST/SP
		Sg. Jinjang	2WKLG045	63	62	62	ST/SP
		Sg. Kerayong	2WKLG046	64	63	49	T/P
		Sg. Kerayong	2WKLG058	58	59	62	ST/SP
		Sg. Keroh	2WKLG015	61	64	62	ST/SP
		Sg. Keroh	2WKLG048	65	64	68	ST/SP
		Sg. Klang	2WKLG001	72	71	58	T/P
		Sg. Klang	2WKLG002	70	71	62	ST/SP
		Sg. Klang	2WKLG003	74	71	68	ST/SP
		Sg. Klang	2WKLG004	70	69	59	T/P
		Sg. Klang	2WKLG049	72	72	76	ST/SP
		Sg. Kuyoh	2WKLG052	66	68	67	ST/SP
		Sg. Penchala	2WKLG010	89	92	92	B/C

Status kualiti air sungai mengikut stesen, Malaysia, 2020-2022 (samb.)*Water quality status by stations, Malaysia, 2020-2022 (cont'd)*

Negeri State	Lembangan Basin	Sungai River	Nombor stesen Station number	Nilai IKA / WQI value			Kategori IKA/ WQI category (2022)
				2020	2021	2022	
W.P. Kuala Lumpur	Sg. Klang	Sg. Toba	2WKL037	61	69	63	ST/SP
		Sg. Untut	2WKL038	64	73	78	ST/SP
N. Sembilan	Sg. Langat	Sg. Batang Benar	3NLGT013	74	74	76	ST/SP
		Sg. Batang Labu	3NLGT009	81	87	85	B/C
		Sg. Batang Labu	3NLGT025	90	94	89	B/C
		Sg. Batang Nilai	3NLGT023	83	87	83	B/C
		Sg. Batang Nilai	3NLGT024	76	75	75	ST/SP
		Sg. Beranang	3NLGT019	82	87	85	B/C
		Sg. Buan	3NLGT022	80	83	85	B/C
		Sg. Jijan	3NLGT026	85	82	88	B/C
		Sg. Pajam	3NLGT020	82	85	86	B/C
		Sg. Pajam	3NLGT021	60	56	58	T/P
	Sg. Linggi	Sg. Batang Penar	3NLGI009	81	89	84	B/C
		Sg. Batang Penar	3NLGI010	92	95	91	B/C
		Sg. Batang Penar	3NLGI020	84	92	89	B/C
		Sg. Batang Penar	3NLGI021	95	95	93	B/C
		Sg. Batang Penar	3NLGI027	94	96	97	B/C
		Sg. Batang Penar	3NLGI034	80	78	84	B/C
		Sg. Batu Hampar	3NLGI024	93	91	93	B/C
		Sg. Chembong	3NLGI012	93	88	89	B/C
		Sg. Empangan Terip	3NLGI022	80	82	85	B/C
		Sg. Jelai	3NLGI025	89	86	88	B/C
		Sg. Kayu Ara	3NLGI016	77	80	84	B/C
		Sg. Kenaboi	3NLGI032	83	87	85	B/C
		Sg. Kepayong	3NLGI007	78	80	79	ST/SP
		Sg. Kepayong	3NLGI023	94	97	97	B/C
		Sg. Kundur Besar	3NLGI013	91	92	92	B/C
		Sg. Linggi	3NLGI001	83	87	86	B/C
		Sg. Linggi	3NLGI002	82	86	86	B/C
		Sg. Linggi	3NLGI003	83	85	87	B/C
		Sg. Linggi	3NLGI004	77	85	85	B/C
		Sg. Linggi	3NLGI005	78	82	82	B/C
		Sg. Linggi	3NLGI006	77	82	83	B/C
		Sg. Muar	3NLGI026	88	93	91	B/C
		Sg. Ngoi Ngoi	3NLGI040	76	80	83	ST/SP
		Sg. Paroi	3NLGI018	78	80	85	ST/SP

Status kualiti air sungai mengikut stesen, Malaysia, 2020-2022 (samb.)*Water quality status by stations, Malaysia, 2020-2022 (cont'd)*

Negeri State	Lembangan Basin	Sungai River	Nombor stesen Station number	Nilai IKA / WQI value			Kategori IKA/ WQI category (2022)
				2020	2021	2022	
N. Sembilan	Sg. Linggi	Sg. Pedas	3NLGI014	90	94	93	B/C
		Sg. Rembau	3NLGI011	91	92	91	B/C
		Sg. Senawang	3NLGI017	73	77	81	B/C
		Sg. Simin	3NLGI015	82	85	87	B/C
		Sg. Temiang	3NLGI019	83	85	87	B/C
		Sg. Temiang	3NLGI033	68	61	70	ST/SP
	Sg. Lukut	Sg. Lukut	3NLKT001	74	73	80	ST/SP
	Sg. Melaka	Sg. Dusun	3NMLK017	93	94	94	B/C
		Sg. Kemunting	3NMLK039	92	92	91	B/C
		Sg. Tampin	3NMLK038	95	96	95	B/C
		Sg. Tampin	3NMLK041	81	83	84	B/C
	Sg. Muar	Sg. Gemas	3NMUA041	70	71	76	ST/SP
		Sg. Gemencheh	3NMUA043	82	91	88	B/C
		Sg. Gemencheh	3NMUA045	82	90	85	B/C
		Sg. Jelai	3NMUA054	88	92	91	B/C
		Sg. Kelamah	3NMUA044	71	88	79	ST/SP
		Sg. Muar	3NMUA042	91	95	96	B/C
		Sg. Muar	3NMUA046	84	90	84	B/C
		Sg. Muar	3NMUA047	86	90	85	B/C
		Sg. Muar	3NMUA048	85	86	86	B/C
		Sg. Muar	3NMUA049	88	89	89	B/C
		Sg. Muar	3NMUA050	85	88	87	B/C
		Sg. Muar	3NMUA051	86	90	86	B/C
		Sg. Muar	3NMUA052	85	91	90	B/C
		Sg. Muar	3NMUA053	85	90	90	B/C
		Sg. Muar	3NMUA055	84	91	91	B/C
	Sg. Pahang	Sg. Pertang	3NPHG002	89	92	91	B/C
		Sg. Serting	3NPHG003	80	87	82	B/C
		Sg. Serting	3NPHG004	79	86	81	B/C
		Sg. Serting	3NPHG005	77	81	77	ST/SP
		Sg. Triang	3NPHG006	84	93	89	B/C
Melaka	Sg. Sepang	Sg. Rambai	2BSPG004	25	25	60	ST/SP
	Sg. Baru	Sg. Baru	3MBAR001	74	70	75	ST/SP
	Sg. Duyong	Sg. Duyong	3MDYG001	63	69	72	ST/SP
		Sg. Duyong	3MDYG002	58	65	66	ST/SP
		Sg. Duyong	3MDYG003	77	84	87	B/C
		Sg. Gapam	3MDYG004	88	92	93	B/C

Status kualiti air sungai mengikut stesen, Malaysia, 2020-2022 (samb.)*Water quality status by stations, Malaysia, 2020-2022 (cont'd)*

Negeri State	Lembangan Basin	Sungai River	Nombor stesen Station number	Nilai IKA / WQI value			Kategori IKA/ WQI category (2022)
				2020	2021	2022	
Melaka	Sg. Duyong	Sg. Punggur	3MPGR001	52	67	58	T/P
		Sg. Punggur	3MPGR002	49	58	56	T/P
	Sg. Kesang	Sg. Chin-Chin	3MKSG006	62	53	66	ST/SP
		Sg. Chin-Chin	3MKSG008	79	87	84	B/C
		Sg. Chin-Chin	3MKSG009	78	89	86	B/C
		Sg. Chohong	3MKSG004	86	91	93	B/C
		Sg. Chohong	3MKSG005	90	94	94	B/C
		Sg. Kesang	3MKSG001	72	82	83	B/C
	Sg. Linggi	Sg. Kesang	3MKSG002	79	88	84	B/C
		Sg. Kesang	3MKSG003	77	88	88	B/C
		Sg. Tangkak	3MKSG007	67	77	74	ST/SP
		Sg. Simpang Ampat	3MLGI029	83	87	84	B/C
	Sg. Melaka	Sg. Siput	3MLGI030	87	90	91	B/C
		Sg. Siput	3MLGI031	86	92	89	B/C
		Sg. Tuang	3MTUG002	57	62	70	ST/SP
	Sg. Melaka	Sg. Batang Melaka	3MMLK008	90	91	91	B/C
		Sg. Batang Melaka	3MMLK027	87	91	91	B/C
		Sg. Batang Melaka	3MMLK028	86	89	92	B/C
		Sg. Durian Tunggal	3MMLK011	79	86	88	B/C
		Sg. Malim	3MMLK014	67	71	70	ST/SP
		Sg. Malim	3MMLK034	67	68	71	ST/SP
		Sg. Melaka	3MMLK007	72	71	74	ST/SP
		Sg. Melaka	3MMLK009	91	93	92	B/C
		Sg. Melaka	3MMLK010	93	96	96	B/C
		Sg. Melaka	3MMLK012	70	72	71	ST/SP
		Sg. Melaka	3MMLK013	63	68	73	ST/SP
		Sg. Melaka	3MMLK015	81	82	84	B/C
		Sg. Melaka	3MMLK021	81	85	86	B/C
		Sg. Melaka	3MMLK022	83	86	87	B/C
		Sg. Melaka	3MMLK023	72	72	67	ST/SP
		Sg. Melaka	3MMLK024	59	69	72	ST/SP
		Sg. Melaka	3MMLK025	79	84	84	B/C
		Sg. Melaka	3MMLK026	80	81	83	B/C
		Sg. Melaka	3MMLK030	82	84	85	B/C
		Sg. Melaka	3MMLK032	70	67	68	ST/SP

Status kualiti air sungai mengikut stesen, Malaysia, 2020-2022 (samb.)*Water quality status by stations, Malaysia, 2020-2022 (cont'd)*

Negeri State	Lembangan Basin	Sungai River	Nombor stesen Station number	Nilai IKA / WQI value			Kategori IKA/ WQI category (2022)
				2020	2021	2022	
Melaka	Sg. Melaka	Sg. Putat	3MMLK029	62	74	68	ST/SP
		Sg. Putat	3MMLK033	59	63	64	ST/SP
		Sg. Rembia	3MMLK035	73	82	77	ST/SP
		Sg. Rembia	3MMLK036	68	54	82	B/C
		Sg. Tampin	3MMLK031	91	94	90	B/C
	Sg. Merlimau	Sg. Merlimau	3MMLU001	60	55	57	T/P
		Sg. Merlimau	3MMLU002	52	56	51	T/P
		Sg. Merlimau	3MMLU003	40	58	61	ST/SP
		Sg. Merlimau	3MMLU004	58	58	63	ST/SP
		Sg. Merlimau	3MMLU005	67	68	66	ST/SP
	Sg. Seri Melaka	Sg. Air Salak	3MSMK001	62	79	78	ST/SP
		Sg. Seri Melaka	3MSMK002	65	66	69	ST/SP
		Sg. Sg.Udang	3MSUD001	87	86	91	B/C
	Sg. Tuang	Sg. Tuang	3MTUG001	59	63	75	ST/SP
Johor	Sg. Air Baloi	Sg. Air Baloi	3JABL001	60	56	55	T/P
		Sg. Air Baloi	3JABL002	59	52	56	T/P
		Sg. Air Baloi	3JABL003	60	57	61	T/P
	Sg. Batu Pahat	Sg. Amran	3JBPT018	75	81	80	ST/SP
		Sg. Bantang	3JBPT020	96	97	97	B/C
		Sg. Batu Pahat	3JBPT001	66	64	61	ST/SP
		Sg. Bekok	3JBPT005	79	84	81	B/C
		Sg. Bekok	3JBPT008	57	67	58	T/P
		Sg. Bekok	3JBPT016	85	91	85	B/C
		Sg. Bekok	3JBPT017	87	91	90	B/C
		Sg. Bekok	3JBPT019	92	94	93	B/C
		Sg. Bekok	3JBPT023	57	63	60	ST/SP
		Sg. Berlian	3JBPT007	78	77	79	ST/SP
		Sg. Chaah	3JBPT010	88	93	90	B/C
		Sg. Kahang	3JBPT022	90	92	82	B/C
		Sg. Lenik	3JBPT011	82	91	90	B/C
		Sg. Merek	3JBPT009	88	89	88	B/C
		Sg. Merpo	3JBPT006	91	90	91	B/C
		Sg. Panchor	3JBPT025	59	63	59	T/P
		Sg. Semberong	3JBPT003	57	64	63	ST/SP
		Sg. Semberong	3JBPT004	64	77	72	ST/SP
		Sg. Semberong Dam	3JBPT021	89	91	89	B/C

Status kualiti air sungai mengikut stesen, Malaysia, 2020-2022 (samb.)*Water quality status by stations, Malaysia, 2020-2022 (cont'd)*

Negeri State	Lembangan Basin	Sungai River	Nombor stesen Station number	Nilai IKA / WQI value			Kategori IKA/ WQI category (2022)
				2020	2021	2022	
Johor	Sg. Batu Pahat	Sg. Simpang Kanan	3JBPT002	58	62	59	T/P
		Sg. Simpang Kanan	3JBPT013	59	60	59	T/P
		Sg. Simpang Kiri	3JBPT012	81	82	80	B/C
		Sg. Simpang Kiri	3JBPT014	65	71	76	ST/SP
		Sg. Simpang Kiri	3JBPT015	60	64	66	ST/SP
		Sg. Temehel	3JBPT024	57	54	59	T/P
	Sg. Benut	Sg. Benut	3JBNT001	86	92	92	B/C
		Sg. Benut	3JBNT002	79	86	86	B/C
		Sg. Benut	3JBNT005	64	66	68	ST/SP
		Sg. Benut	3JBNT006	69	62	62	ST/SP
		Sg. Machap Dam	3JBNT008	92	94	93	B/C
		Sg. Parit Hj.Yassin	3JBNT004	85	81	81	B/C
		Sg. Pinggan	3JBNT007	60	59	63	ST/SP
		Sg. Ulu Benut	3JBNT003	89	90	86	B/C
	Sg. Danga	Sg. Danga	3JDGA001	58	62	66	ST/SP
		Sg. Danga	3JDGA002	55	59	62	T/P
	Sg. Endau	Sg. Anak Sg. Semberong	3JEND007	84	85	84	B/C
		Sg. Dengar	3JEND010	84	91	90	B/C
		Sg. Empangan Labong	3JEND027	89	91	91	B/C
		Sg. Endau	3JEND019	85	88	89	B/C
		Sg. Endau	3JEND022	87	90	91	B/C
		Sg. Endau	3JEND023	93	96	92	B/C
		Sg. Jasin	3JEND024	94	97	96	B/C
		Sg. Jebong	3JEND005	74	82	75	ST/SP
		Sg. Kahang	3JEND020	90	89	89	B/C
		Sg. Kahang	3JEND026	90	94	92	B/C
		Sg. Kahang	3JEND028	90	88	88	B/C
		Sg. Lenga	3JEND008	68	69	74	ST/SP
		Sg. Lenggor	3JEND009	82	89	89	B/C
		Sg. Lenggor	3JEND029	81	88	90	B/C
		Sg. Mamai	3JEND015	87	88	89	B/C
		Sg. Melatai	3JEND017	70	71	73	ST/SP
		Sg. Mengkibol	3JEND001	88	89	92	B/C
		Sg. Mengkibol	3JEND002	77	84	82	B/C
		Sg. Mengkibol	3JEND003	69	75	77	ST/SP

Status kualiti air sungai mengikut stesen, Malaysia, 2020-2022 (samb.)*Water quality status by stations, Malaysia, 2020-2022 (cont'd)*

Negeri State	Lembangan Basin	Sungai River	Nombor stesen Station number	Nilai IKA / WQI value			Kategori IKA/ WQI category (2022)
				2020	2021	2022	
Johor	Sg. Endau	Sg. Paloh	3JEND016	82	85	85	B/C
		Sg. Pamol	3JEND011	72	76	73	ST/SP
		Sg. Selai	3JEND025	92	94	94	B/C
		Sg. Semberong	3JEND004	89	90	87	B/C
		Sg. Semberong	3JEND006	84	84	80	ST/SP
		Sg. Semberong	3JEND012	76	80	77	ST/SP
		Sg. Semberong	3JEND018	85	88	88	B/C
		Sg. Semberong	3JEND021	84	88	89	B/C
		Sg. Singol	3JEND013	79	83	87	B/C
		Sg. Tamok	3JEND014	91	90	91	B/C
	Sg. Jemaluang	Sg. Jemaluang	3JJML001	81	90	90	B/C
		Sg. Jemaluang	3JJML002	81	86	80	ST/SP
	Sg. Johor	Sg. Anak Sg. Sayong	3JJHR023	86	92	92	B/C
		Sg. Anak Sg. Sayong	3JJHR032	75	84	72	ST/SP
		Sg. Belitong	3JJHR038	83	89	86	B/C
		Sg. Berangan	3JJHR013	71	82	81	B/C
		Sg. Bukit Besar	3JJHR007	61	60	56	T/P
		Sg. Bukit Besar	3JJHR009	90	95	95	B/C
		Sg. Chemangar	3JJHR019	70	73	77	ST/SP
		Sg. Johor	3JJHR011	83	89	91	B/C
		Sg. Johor	3JJHR014	85	89	91	B/C
		Sg. Johor	3JJHR015	86	91	92	B/C
		Sg. Johor	3JJHR040	84	87	88	B/C
		Sg. Johor	3JJHR041	82	89	88	B/C
		Sg. Johor	3JJHR042	85	90	88	B/C
		Sg. Layang	3JJHR001	93	93	93	B/C
		Sg. Layau Kiri	3JJHR017	87	92	89	B/C
		Sg. Lebam	3JJHR020	79	87	88	B/C
		Sg. Linggiu	3JJHR030	84	93	92	B/C
		Sg. Panti	3JJHR037	79	87	86	B/C
		Sg. Papan	3JJHR034	81	86	87	B/C
		Sg. Pelepah	3JJHR039	95	97	97	B/C
		Sg. Pelepah	3JJHR043	86	87	87	B/C
		Sg. Pelepah	3JJHR044	87	88	90	B/C
		Sg. Pelepah	3JJHR045	90	92	93	B/C

Status kualiti air sungai mengikut stesen, Malaysia, 2020-2022 (samb.)*Water quality status by stations, Malaysia, 2020-2022 (cont'd)*

Negeri State	Lembangan Basin	Sungai River	Nombor stesen Station number	Nilai IKA / WQI value			Kategori IKA/ WQI category (2022)
				2020	2021	2022	
Johor	Sg. Johor	Sg. Penggeli	3JJHR028	89	87	90	B/C
		Sg. Penggeli	3JJHR031	89	88	89	B/C
		Sg. Remis	3JJHR026	86	89	89	B/C
		Sg. Santi	3JJHR022	89	87	90	B/C
		Sg. Sayong	3JJHR024	82	85	82	B/C
		Sg. Sayong	3JJHR025	78	84	88	B/C
		Sg. Sayong	3JJHR027	82	84	88	B/C
		Sg. Sayong	3JJHR033	83	88	89	B/C
		Sg. Sebol	3JJHR029	73	80	79	ST/SP
		Sg. Seluyut	3JJHR035	83	87	83	B/C
		Sg. Semangar	3JJHR008	81	92	90	B/C
		Sg. Semenchu	3JJHR018	66	85	86	B/C
		Sg. Sening	3JJHR021	89	93	96	B/C
		Sg. Serai	3JJHR002	67	60	62	ST/SP
		Sg. Telor	3JJHR012	88	89	93	B/C
		Sg. Temoh	3JJHR016	74	84	88	B/C
		Sg. Tiram	3JJHR003	71	79	77	ST/SP
		Sg. Tiram	3JJHR004	86	91	89	B/C
		Sg. Tiram	3JJHR005	69	68	77	ST/SP
		Sg. Tiram	3JJHR006	88	93	92	B/C
	Sg. Kaw. Pasir Gudang	Sg. Buluh	3JPGD002	41	43	40	T/P
		Sg. Lato	3JPGD004	62	68	71	ST/SP
		Sg. Masai	3JPGD005	63	60	63	ST/SP
		Sg. Perembi	3JPGD001	57	47	59	T/P
		Sg. Tukang Batu	3JPGD003	42	35	34	T/P
	Sg. Kempas	Sg. Kempas	3JKPS001	29	33	39	T/P
		Sg. Kempas	3JKPS002	37	42	43	T/P
	Sg. Kim-Kim	Sg. Kim-Kim	3JKIM001	51	66	57	T/P
		Sg. Kim-Kim	3JKIM002	85	90	89	B/C
	Sg. Mersing	Sg. Empangan Congok	3JMSG004	85	88	86	B/C
		Sg. Mersing	3JMSG001	87	95	93	B/C
		Sg. Mersing	3JMSG002	84	88	81	B/C
		Sg. Mersing	3JMSG003	83	92	87	B/C
	Sg. Muar	Sg. Air Panas	3JMUA035	94	97	96	B/C
		Sg. Belemang	3JMUA051	94	95	94	B/C
		Sg. Gemas	3JMUA036	80	85	86	B/C

Status kualiti air sungai mengikut stesen, Malaysia, 2020-2022 (samb.)*Water quality status by stations, Malaysia, 2020-2022 (cont'd)*

Negeri State	Lembangan Basin	Sungai River	Nombor stesen Station number	Nilai IKA / WQI value			Kategori IKA/ WQI category (2022)
				2020	2021	2022	
Johor	Sg. Muar	Sg. Jementah	3JMUA040	93	96	95	B/C
		Sg. Juasseh	3JMUA014	94	96	92	B/C
		Sg. Juasseh	3JMUA037	93	95	95	B/C
		Sg. Juasseh	3JMUA045	94	95	94	B/C
		Sg. Labis	3JMUA011	89	88	87	B/C
		Sg. Labis	3JMUA012	89	89	88	B/C
		Sg. Labis	3JMUA015	87	87	82	B/C
		Sg. Meda	3JMUA034	82	85	80	ST/SP
		Sg. Merbudu	3JMUA030	63	77	72	ST/SP
		Sg. Merlimau	3JMUA020	70	66	73	ST/SP
		Sg. Muar	3JMUA017	82	86	81	B/C
		Sg. Muar	3JMUA019	85	87	76	ST/SP
		Sg. Muar	3JMUA022	85	89	82	B/C
		Sg. Muar	3JMUA026	84	89	85	B/C
		Sg. Muar	3JMUA027	85	84	83	B/C
		Sg. Muar	3JMUA028	83	81	83	B/C
		Sg. Muar	3JMUA029	75	84	85	B/C
		Sg. Muar	3JMUA031	77	83	84	B/C
		Sg. Muar	3JMUA033	73	77	80	ST/SP
		Sg. Muar	3JMUA039	82	85	82	B/C
		Sg. Muar	3JMUA041	80	86	84	B/C
		Sg. Muar	3JMUA042	78	86	85	B/C
		Sg. Muar	3JMUA043	79	83	85	B/C
		Sg. Muar	3JMUA046	86	89	83	B/C
		Sg. Muar	3JMUA047	81	87	84	B/C
		Sg. P. Mengkuang	3JMUA018	89	92	91	B/C
		Sg. Pagoh	3JMUA049	66	74	76	ST/SP
		Sg. Palong	3JMUA024	88	89	87	B/C
		Sg. Palong	3JMUA025	84	85	81	B/C
		Sg. Pendol	3JMUA050	90	95	93	B/C
		Sg. Sarang Buaya	3JMUA038	58	60	60	ST/SP
		Sg. Segamat	3JMUA016	89	90	86	B/C
		Sg. Segamat	3JMUA044	91	94	89	B/C
		Sg. Segamat	3JMUA048	92	95	91	B/C

Status kualiti air sungai mengikut stesen, Malaysia, 2020-2022 (samb.)*Water quality status by stations, Malaysia, 2020-2022 (cont'd)*

Negeri State	Lembangan Basin	Sungai River	Nombor stesen Station number	Nilai IKA / WQI value			Kategori IKA/ WQI category (2022)
				2020	2021	2022	
Johor	Sg. Muar	Sg. Senarut	3JMUA021	75	77	79	ST/SP
		Sg. Serom	3JMUA032	63	63	63	ST/SP
		Sg. Simpang Loi	3JMUA023	77	84	73	ST/SP
		Sg. Tenang	3JMUA013	79	76	81	B/C
	Sg. Paloi	Sg. Paloi	3JPAL001	89	90	90	B/C
	Sg. Pontian Besar	Sg. Air Hitam	3JPBS001	71	74	73	ST/SP
		Sg. Ayer Merah	3JPBS005	43	54	54	T/P
		Sg. Pontian Besar	3JPBS002	65	65	63	ST/SP
		Sg. Pontian Besar	3JPBS003	80	85	78	ST/SP
		Sg. Pontian Besar	3JPBS004	86	84	85	B/C
		Sg. Pontian Besar	3JPBS006	64	63	60	ST/SP
		Sg. Pontian Besar	3JPBS007	73	73	74	ST/SP
	Sg. Pontian Kecil	Sg. Pontian Kecil	3JPKC001	86	84	85	B/C
		Sg. Pontian Kecil	3JPKC002	76	75	70	ST/SP
	Sg. Pulai	Sg. Pulai	3JPLI001	82	83	86	B/C
		Sg. Pulai	3JPLI002	72	77	82	B/C
		Sg. Pulai Dam	3JPLI004	95	95	96	B/C
		Sg. Ulu Choh	3JPLI003	72	72	74	ST/SP
	Sg. Rambah	Sg. Rambah	3JRBH001	75	69	78	ST/SP
		Sg. Rambah	3JRBH002	65	63	70	ST/SP
	Sg. Sanglang	Sg. Sanglang	3JSLG001	59	57	51	T/P
	Sg. Sedili Besar	Sg. Ambat	3JSBE005	86	84	76	ST/SP
		Sg. Dohol	3JSBE001	89	90	86	B/C
		Sg. Mupur	3JSBE009	67	73	73	ST/SP
		Sg. Pasir Panjang	3JSBE010	88	87	76	ST/SP
		Sg. Sedili Besar	3JSBE002	86	86	86	B/C
		Sg. Sedili Besar	3JSBE004	91	93	91	B/C
		Sg. Sedili Besar	3JSBE006	82	87	85	B/C
		Sg. Sedili Besar	3JSBE007	74	72	70	ST/SP
		Sg. Sedili Besar	3JSBE008	87	89	85	B/C
		Sg. Sedili Besar	3JSBE011	90	88	87	B/C
		Sg. Temubor Kanan	3JSBE003	93	95	93	B/C
	Sg. Sedili Kecil	Sg. Anak Sedili Kecil	3JSKE005	25	24	74	ST/SP
		Sg. Anak Sedili Kecil	3JSKE006	79	85	75	ST/SP

Status kualiti air sungai mengikut stesen, Malaysia, 2020-2022 (samb.)*Water quality status by stations, Malaysia, 2020-2022 (cont'd)*

Negeri State	Lembangan Basin	Sungai River	Nombor stesen Station number	Nilai IKA / WQI value			Kategori IKA/ WQI category (2022)
				2020	2021	2022	
Johor	Sg. Sedili Kecil	Sg. Bahan	3JSKE002	78	73	64	ST/SP
		Sg. Bahan	3JSKE004	74	78	76	ST/SP
		Sg. Sedili Kecil	3JSKE001	89	88	83	B/C
		Sg. Sedili Kecil	3JSKE003	80	76	78	ST/SP
	Sg. Segget	Sg. Segget	3JSGT001	81	71	64	ST/SP
		Sg. Segget	3JSGT002	77	68	72	ST/SP
		Sg. Segget	3JSGT003	59	67	65	ST/SP
		Sg. Segget	3JSGT004	63	78	76	ST/SP
		Sg. Segget	3JSGT005	54	65	72	ST/SP
	Sg. Skudai	Sg. Melana	3JSKU008	91	95	94	B/C
		Sg. Melana	3JSKU009	61	59	66	ST/SP
		Sg. Skudai	3JSKU001	55	63	65	ST/SP
		Sg. Skudai	3JSKU002	66	71	65	ST/SP
		Sg. Skudai	3JSKU003	61	74	74	ST/SP
		Sg. Skudai	3JSKU004	89	90	93	B/C
		Sg. Skudai	3JSKU005	72	79	81	B/C
		Sg. Skudai	3JSKU006	66	76	77	ST/SP
		Sg. Skudai	3JSKU007	43	54	63	ST/SP
		Sg. Skudai	3JSKU010	55	62	61	ST/SP
		Sg. Skudai	3JSKU011	92	92	95	B/C
	Sg. Tebrau	Sg. Bala	3JTRU008	55	47	55	T/P
		Sg. Pandan	3JTRU007	46	43	58	T/P
		Sg. Plentong	3JTRU004	56	66	67	ST/SP
		Sg. Sebulung	3JTRU009	53	58	62	ST/SP
		Sg. Sengkuang	3JTRU011	52	53	50	T/P
		Sg. Tampoi	3JTRU010	52	60	58	T/P
		Sg. Tebrau	3JTRU001	44	65	57	T/P
		Sg. Tebrau	3JTRU002	55	72	54	T/P
		Sg. Tebrau	3JTRU003	65	72	68	ST/SP
		Sg. Tebrau	3JTRU005	57	65	62	ST/SP
		Sg. Tebrau	3JTRU006	64	69	71	ST/SP
Pahang	Sg. Anak Endau	Sg. Anak Endau	4CAED001	94	95	95	B/C
		Sg. Anak Endau	4CAED002	84	87	86	B/C

Status kualiti air sungai mengikut stesen, Malaysia, 2020-2022 (samb.)*Water quality status by stations, Malaysia, 2020-2022 (cont'd)*

Negeri State	Lembangan Basin	Sungai River	Nombor stesen Station number	Nilai IKA / WQI value			Kategori IKA/ WQI category (2022)
				2020	2021	2022	
Pahang	Sg. Balok	Sg. Balok	4CBLK001	66	82	74	ST/SP
		Sg. Balok	4CBLK002	70	77	77	ST/SP
		Sg. Panjang	4CBLK004	76	78	72	ST/SP
		Sg. Yior	4CBLK003	62	75	74	ST/SP
	Sg. Bebar	Sg. Bebar	4CBBR001	76	86	83	B/C
		Sg. Bebar	4CBBR002	82	92	89	B/C
		Sg. Merba	4CBBR005	85	91	88	B/C
		Sg. Serai	4CBBR003	75	85	74	ST/SP
		Sg. Serai	4CBBR004	85	88	86	B/C
	Sg. Cherating	Sg. Cherating	4CCHE001	81	86	85	B/C
	Sg. Kuantan	Sg. Belat	4CKTN001	80	86	88	B/C
		Sg. Charu	4CKTN006	93	96	95	B/C
		Sg. Galing Besar	4CKTN003	63	70	76	ST/SP
		Sg. Galing Besar	4CKTN004	64	62	76	ST/SP
		Sg. Kenau	4CKTN010	94	97	96	B/C
		Sg. Kuantan	4CKTN002	88	93	87	B/C
		Sg. Kuantan	4CKTN015	87	93	87	B/C
		Sg. Kuantan	4CKTN016	90	93	94	B/C
		Sg. Kuantan	4CKTN017	93	96	96	B/C
		Sg. Kuantan	4CKTN018	94	96	97	B/C
		Sg. Kuantan	4CKTN019	80	85	87	B/C
		Sg. Kuantan	4CKTN020	86	93	87	B/C
		Sg. Kuantan	4CKTN021	85	88	89	B/C
	Sg. Merchong	Sg. Merchong	4CMCO002	82	92	86	B/C
		Sg. Merchong	4CMCO003	89	93	89	B/C
	Sg. Pahang	Sg. Anak Sg. Lepar	4CPHG136	85	93	89	B/C
		Sg. Batu	4CPHG056	84	92	91	B/C
		Sg. Belayar	4CPHG135	94	94	92	B/C
		Sg. Bentong	4CPHG040	92	95	95	B/C
		Sg. Bentong	4CPHG045	87	91	89	B/C
		Sg. Bentong	4CPHG092	92	95	90	B/C
		Sg. Bentong	4CPHG133	86	93	94	B/C
		Sg. Bentong	4CPHG134	92	96	96	B/C
		Sg. Bentong	4CPHG144	86	89	88	B/C

Status kualiti air sungai mengikut stesen, Malaysia, 2020-2022 (samb.)*Water quality status by stations, Malaysia, 2020-2022 (cont'd)*

Negeri State	Lembangan Basin	Sungai River	Nombor stesen Station number	Nilai IKA / WQI value			Kategori IKA/ WQI category (2022)
				2020	2021	2022	
Pahang	Sg. Pahang	Sg. Benus	4CPHG047	91	91	91	B/C
		Sg. Benus	4CPHG118	94	94	92	B/C
		Sg. Benus	4CPHG152	93	96	91	B/C
		Sg. Bera	4CPHG019	83	86	85	B/C
		Sg. Bera	4CPHG020	84	86	89	B/C
		Sg. Bera	4CPHG058	85	86	88	B/C
		Sg. Bera	4CPHG059	85	91	85	B/C
		Sg. Bera	4CPHG063	85	86	85	B/C
		Sg. Berkelah	4CPHG098	93	97	97	B/C
		Sg. Bertam	4CBTM002	91	94	89	B/C
		Sg. Bertam	4CBTM010	74	79	78	ST/SP
		Sg. Bertam	4CBTM011	96	96	97	B/C
		Sg. Bertam	4CBTM013	97	97	97	B/C
		Sg. Bilut	4CPHG119	83	88	85	B/C
		Sg. Bilut	4CPHG129	85	92	92	B/C
		Sg. Burung	4CBTM005	96	96	95	B/C
		Sg. Chini	4CPHG004	82	84	85	B/C
		Sg. Gapoi	4CPHG086	94	97	96	B/C
		Sg. Habu	4CBTM004	90	96	94	B/C
		Sg. Jelai	4CPHG013	90	93	93	B/C
		Sg. Jelai	4CPHG096	86	91	88	B/C
		Sg. Jelai	4CPHG125	88	90	90	B/C
		Sg. Jempol	4CPHG049	83	91	90	B/C
		Sg. Jempol	4CPHG050	93	97	94	B/C
		Sg. Jempol	4CPHG087	93	95	93	B/C
		Sg. Jempol	4CPHG088	90	95	91	B/C
		Sg. Jempol	4CPHG121	85	95	94	B/C
		Sg. Jengka	4CPHG041	92	95	93	B/C
		Sg. Jengka	4CPHG051	86	89	90	B/C
		Sg. Kecau	4CPHG091	83	87	91	B/C
		Sg. Kecau	4CPHG116	84	87	84	B/C
		Sg. Kecau	4CPHG151	89	89	95	B/C
		Sg. Kelau	4CPHG117	88	91	94	B/C
		Sg. Kelau	4CPHG145	82	86	86	B/C
		Sg. Kelau	4CPHG146	91	93	94	B/C
		Sg. Kelau	4CPHG153	84	89	84	B/C

Status kualiti air sungai mengikut stesen, Malaysia, 2020-2022 (samb.)*Water quality status by stations, Malaysia, 2020-2022 (cont'd)*

Negeri State	Lembangan Basin	Sungai River	Nombor stesen Station number	Nilai IKA / WQI value			Kategori IKA/ WQI category (2022)
				2020	2021	2022	
Pahang	Sg. Pahang	Sg. Kertam	4CPHG014	91	91	93	B/C
		Sg. Koyan	4CPHG033	89	94	92	B/C
		Sg. Krau	4CPHG003	92	94	92	B/C
		Sg. Kundang	4CPHG018	79	82	85	B/C
		Sg. Lenggok	4CBTM003	93	96	92	B/C
		Sg. Lepar	4CPHG006	92	91	93	B/C
		Sg. Lipis	4CPHG029	85	90	89	B/C
		Sg. Lipis	4CPHG030	88	91	91	B/C
		Sg. Lipis	4CPHG035	93	96	94	B/C
		Sg. Luit	4CPHG015	91	93	92	B/C
		Sg. Maran	4CPHG016	93	96	96	B/C
		Sg. Mentiga	4CPHG005	80	77	83	B/C
		Sg. Mentiga	4CPHG042	85	86	88	B/C
		Sg. Mentiga	4CPHG089	85	87	89	B/C
		Sg. Pahang	4CPHG007	82	90	88	B/C
		Sg. Pahang	4CPHG008	93	93	91	B/C
		Sg. Pahang	4CPHG010	87	90	92	B/C
		Sg. Pahang	4CPHG011	88	93	89	B/C
		Sg. Pahang	4CPHG012	89	93	90	B/C
		Sg. Pahang	4CPHG013	89	91	90	B/C
		Sg. Pahang	4CPHG021	87	92	90	B/C
		Sg. Pahang	4CPHG022	87	91	91	B/C
		Sg. Pahang	4CPHG023	91	94	92	B/C
		Sg. Pahang	4CPHG027	88	94	92	B/C
		Sg. Pahang	4CPHG054	87	90	88	B/C
		Sg. Pahang	4CPHG055	86	91	90	B/C
		Sg. Pahang	4CPHG097	88	93	89	B/C
		Sg. Pahang	4CPHG100	84	89	88	B/C
		Sg. Pahang	4CPHG104	87	91	90	B/C
		Sg. Pahang	4CPHG111	89	92	93	B/C
		Sg. Pahang	4CPHG113	87	92	88	B/C
		Sg. Pahang	4CPHG124	89	91	91	B/C
		Sg. Pahang	4CPHG126	88	92	91	B/C

Status kualiti air sungai mengikut stesen, Malaysia, 2020-2022 (samb.)*Water quality status by stations, Malaysia, 2020-2022 (cont'd)*

Negeri State	Lembangan Basin	Sungai River	Nombor stesen Station number	Nilai IKA / WQI value			Kategori IKA/ WQI category (2022)
				2020	2021	2022	
Pahang	Sg. Pahang	Sg. Pahang	4CPHG127	89	88	96	B/C
		Sg. Pahang	4CPHG131	88	88	89	B/C
		Sg. Pahang	4CPHG137	86	93	90	B/C
		Sg. Pahang	4CPHG138	85	90	89	B/C
		Sg. Pahang	4CPHG139	83	90	89	B/C
		Sg. Pahang	4CPHG141	87	91	93	B/C
		Sg. Pahang	4CPHG148	88	92	88	B/C
		Sg. Pahang	4CPHG150	87	89	89	B/C
		Sg. Penjuring	4CPHG044	94	97	97	B/C
		Sg. Pertang	4CPHG132	91	90	91	B/C
		Sg. Perting	4CPHG120	94	96	97	B/C
		Sg. Raub	4CPHG123	93	95	95	B/C
		Sg. Retang	4CPHG105	92	93	94	B/C
		Sg. Ringlet	4CBTM001	83	91	89	B/C
		Sg. Salak	4CPHG122	87	91	91	B/C
		Sg. Semantan	4CPHG025	87	92	88	B/C
		Sg. Semantan	4CPHG036	91	92	93	B/C
		Sg. Semantan	4CPHG061	87	90	85	B/C
		Sg. Semantan	4CPHG084	88	93	88	B/C
		Sg. Serting	4CPHG101	84	85	86	B/C
		Sg. Serting	4CPHG102	85	84	86	B/C
		Sg. T. Paya Bungor	4CPHG002	91	91	92	B/C
		Sg. Tahan	4CPHG109	91	92	94	B/C
		Sg. Tanglir	4CPHG048	88	94	90	B/C
		Sg. Tanglir	4CPHG053	89	87	89	B/C
		Sg. Tanglir	4CPHG057	87	84	89	B/C
		Sg. Tanglir	4CPHG106	88	86	97	B/C
		Sg. Tanglir	4CPHG107	88	88	90	B/C
		Sg. Tasik Bera	4CPHG140	91	88	89	B/C
		Sg. Tasik Chini	4CPHG043	92	88	93	B/C
		Sg. Tasik Chini	4CPHG060	93	90	92	B/C
		Sg. Tasik Chini	4CPHG071	91	92	93	B/C
		Sg. Tasik Chini	4CPHG108	92	93	93	B/C
		Sg. Tasik Chini	4CPHG110	91	87	93	B/C

Status kualiti air sungai mengikut stesen, Malaysia, 2020-2022 (samb.)*Water quality status by stations, Malaysia, 2020-2022 (cont'd)*

Negeri State	Lembangan Basin	Sungai River	Nombor stesen Station number	Nilai IKA / WQI value			Kategori IKA/ WQI category (2022)
				2020	2021	2022	
Pahang	Sg. Pahang	Sg. Tasik Chini	4CPHG112	93	89	92	B/C
		Sg. Tasik Chini	4CPHG114	92	92	93	B/C
		Sg. Tasik Chini	4CPHG115	92	90	92	B/C
		Sg. Tasik Chini	4CPHG130	92	90	92	B/C
		Sg. Tasik Chini	4CPHG143	92	87	90	B/C
		Sg. Teh	4CPHG090	93	94	94	B/C
		Sg. Tekal	4CPHG062	85	89	87	B/C
		Sg. Telang	4CPHG032	91	94	93	B/C
		Sg. Telemong	4CPHG046	94	96	95	B/C
		Sg. Telemong	4CPHG093	93	93	93	B/C
		Sg. Telemong	4CPHG094	91	97	94	B/C
		Sg. Telom	4CBTM008	86	95	94	B/C
		Sg. Telom	4CBTM009	86	93	92	B/C
		Sg. Tembeling	4CPHG142	91	90	94	B/C
		Sg. Teranum	4CPHG038	95	96	96	B/C
		Sg. Teras	4CPHG037	93	96	95	B/C
		Sg. Teras	4CPHG147	91	96	96	B/C
		Sg. Teris	4CPHG081	91	94	95	B/C
		Sg. Teris	4CPHG082	92	95	94	B/C
		Sg. Teris	4CPHG083	92	94	94	B/C
		Sg. Terla	4CBTM007	92	95	97	B/C
		Sg. Terla	4CBTM012	95	97	97	B/C
		Sg. Triang	4CPHG024	88	91	85	B/C
		Sg. Triang	4CPHG074	88	91	84	B/C
		Sg. Tringkap	4CBTM006	89	94	96	B/C
		Sg. Ulong	4CBTM014	96	97	97	B/C
	Sg. Rompin	Sg. Aur	4CRPN005	86	91	90	B/C
		Sg. Bakar	4CRPN016	75	69	92	B/C
		Sg. Jekatih	4CRPN012	87	91	92	B/C
		Sg. Jekatih	4CRPN013	87	90	91	B/C
		Sg. Jeram	4CRPN006	88	93	90	B/C
		Sg. Kepasing	4CRPN010	88	90	92	B/C
		Sg. Keratong	4CRPN011	84	87	91	B/C
		Sg. Keratong	4CRPN018	84	91	91	B/C

Status kualiti air sungai mengikut stesen, Malaysia, 2020-2022 (samb.)*Water quality status by stations, Malaysia, 2020-2022 (cont'd)*

Negeri State	Lembangan Basin	Sungai River	Nombor stesen Station number	Nilai IKA / WQI value			Kategori IKA/ WQI category (2022)
				2020	2021	2022	
Pahang	Sg. Rompin	Sg. Keratong	4CRPN021	86	93	90	B/C
		Sg. Keratong	4CRPN022	88	93	90	B/C
		Sg. Pontian	4CRPN003	85	90	84	B/C
		Sg. Pukin	4CRPN014	87	90	92	B/C
		Sg. Pukin	4CRPN015	84	90	94	B/C
		Sg. Pukin	4CRPN017	87	89	94	B/C
		Sg. Rompin	4CRPN004	78	88	87	B/C
		Sg. Rompin	4CRPN007	79	92	88	B/C
		Sg. Rompin	4CRPN008	85	93	91	B/C
		Sg. Rompin	4CRPN020	83	93	91	B/C
		Sg. Rompin	4CRPN030	86	90	91	B/C
		Sg. Sepayang	4CRPN002	77	84	86	B/C
	Sg. Tonggok	Sg. Tonggok	4CTGK001	80	82	67	ST/SP
		Sg. Tonggok	4CTGK002	65	80	75	ST/SP
Terengganu	Sg. Besut	Sg. Besut	4TBST002	91	93	94	B/C
		Sg. Besut	4TBST003	92	94	93	B/C
		Sg. Besut	4TBST004	93	96	93	B/C
		Sg. Besut	4TBST005	92	93	95	B/C
		Sg. Besut	4TBST006	92	94	95	B/C
		Sg. Jerih	4TBST001	88	92	91	B/C
	Sg. Chukai	Sg. Bungkus	4TCKI006	80	83	81	B/C
		Sg. Chukai	4TCKI003	80	87	88	B/C
		Sg. Ibok	4TCKI001	81	87	89	B/C
		Sg. Ibok	4TCKI002	91	91	87	B/C
		Sg. Ruang	4TCKI004	74	80	80	ST/SP
		Sg. Ruang	4TCKI005	65	80	79	ST/SP
	Sg. Dungun	Sg. Dungun	4TDGN002	92	96	95	B/C
		Sg. Dungun	4TDGN003	91	95	93	B/C
		Sg. Dungun	4TDGN004	90	94	91	B/C
		Sg. Dungun	4TDGN005	90	94	92	B/C
		Sg. Dungun	4TDGN006	91	94	91	B/C
		Sg. Telemboh	4TDGN001	86	89	89	B/C
	Sg. Ibai	Sg. Ibai	4TIBI001	81	75	73	ST/SP
		Sg. Ibai	4TIBI002	79	84	83	B/C

Status kualiti air sungai mengikut stesen, Malaysia, 2020-2022 (samb.)*Water quality status by stations, Malaysia, 2020-2022 (cont'd)*

Negeri State	Lembangan Basin	Sungai River	Nombor stesen Station number	Nilai IKA / WQI value			Kategori IKA/ WQI category (2022)
				2020	2021	2022	
Terengganu	Sg. Kemaman	Sg. Ibai	4TIBI003	85	82	87	B/C
		Sg. Cherul	4TKMM003	90	92	92	B/C
		Sg. Cherul	4TKMM004	91	91	90	B/C
		Sg. Cherul	4TKMM010	89	90	91	B/C
		Sg. Kemaman	4TKMM007	92	95	95	B/C
		Sg. Kemaman	4TKMM008	87	94	89	B/C
		Sg. Kemaman	4TKMM009	86	90	92	B/C
		Sg. Neram	4TKMM005	75	86	85	B/C
		Sg. Perasing	4TKMM006	82	92	94	B/C
		Sg. Ransan	4TKMM001	65	78	79	ST/SP
		Sg. Ransan	4TKMM002	91	95	95	B/C
	Sg. Kertih	Sg. Kertih	4TKTH001	82	88	91	B/C
		Sg. Kertih	4TKTH002	87	83	86	B/C
	Sg. Kluang	Sg. Kluang	4TKLU005	88	84	84	B/C
		Sg. Kerak	4TMRG001	79	82	85	B/C
	Sg. Marang	Sg. Marang	4TMRG002	88	89	94	B/C
		Sg. Temala	4TMRG003	91	92	91	B/C
	Sg. Merang	Sg. Merang	4TMER001	82	77	77	ST/SP
	Sg. Merchang	Sg. Landas	4TMCA001	71	87	87	B/C
		Sg. Merchang	4TMCA002	71	80	73	ST/SP
	Sg. Paka	Sg. Besul	4TPKA001	92	96	96	B/C
		Sg. Paka	4TPKA005	87	88	89	B/C
		Sg. Paka	4TPKA006	88	92	91	B/C
		Sg. Paka	4TPKA007	88	90	91	B/C
		Sg. Rasau	4TPKA003	83	85	86	B/C
		Sg. Rasau	4TPKA004	77	83	79	B/C
		Sg. Rengat	4TPKA002	84	91	91	B/C
	Sg. Setiu	Sg. Bari	4TSTU002	92	95	95	B/C
		Sg. Chalok	4TSTU001	85	94	91	B/C
		Sg. Chalok	4TSTU005	90	92	93	B/C
		Sg. Chalok	4TSTU006	83	83	85	B/C
		Sg. Setiu	4TSTU004	87	93	93	B/C
		Sg. Setiu	4TSTU007	90	94	93	B/C
		Sg. Tarom	4TSTU003	89	94	95	B/C

Status kualiti air sungai mengikut stesen, Malaysia, 2020-2022 (samb.)*Water quality status by stations, Malaysia, 2020-2022 (cont'd)*

Negeri State	Lembangan Basin	Sungai River	Nombor stesen Station number	Nilai IKA / WQI value			Kategori IKA/ WQI category (2022)
				2020	2021	2022	
Terengganu	Sg. Terengganu	Sg. Berang	4TTGG002	89	92	96	B/C
		Sg. Berang	4TTGG011	92	97	96	B/C
		Sg. Nerus	4TTGG004	85	91	87	B/C
		Sg. Nerus	4TTGG005	92	95	96	B/C
		Sg. Nerus	4TTGG006	89	93	95	B/C
		Sg. Nerus	4TTGG010	66	68	72	ST/SP
		Sg. Nerus	4TTGG014	90	94	94	B/C
		Sg. Nerus	4TTGG015	91	94	95	B/C
		Sg. Pueh	4TTGG007	70	82	86	B/C
		Sg. Pueh	4TTGG008	77	89	93	B/C
		Sg. Telemong	4TTGG012	88	93	91	B/C
		Sg. Terengganu	4TTGG001	87	91	90	B/C
		Sg. Terengganu	4TTGG003	90	95	96	B/C
		Sg. Terengganu	4TTGG009	87	88	89	B/C
		Sg. Terengganu	4TTGG013	89	92	93	B/C
Kelantan	Sg. Golok	Sg. Golok	4DGLK002	86	93	91	B/C
		Sg. Golok	4DGLK003	94	97	94	B/C
		Sg. Golok	4DGLK004	87	93	89	B/C
		Sg. Golok	4DGLK005	89	93	90	B/C
		Sg. Golok	4DGLK006	86	91	88	B/C
		Sg. Jedok	4DGLK008	90	95	95	B/C
		Sg. Lanas	4DGLK007	84	94	90	B/C
		Sg. Tasik Garu	4DGLK001	80	85	82	B/C
	Sg. Kelantan	Sg. Aring	4DKLT013	79	80	83	B/C
		Sg. Belatop	4DKLT020	83	89	87	B/C
		Sg. Belatop	4DKLT021	87	96	93	B/C
		Sg. Belatop	4DKLT046	78	82	82	B/C
		Sg. Ber	4DKLT018	87	91	91	B/C
		Sg. Berok	4DKLT016	81	83	85	B/C
		Sg. Berok	4DKLT019	88	90	90	B/C
		Sg. Berok	4DKLT022	81	84	81	B/C
		Sg. Betis	4DKLT017	86	93	92	B/C
		Sg. Chiku	4DKLT037	88	88	90	B/C
		Sg. Chiku	4DKLT043	89	90	92	B/C

Status kualiti air sungai mengikut stesen, Malaysia, 2020-2022 (samb.)*Water quality status by stations, Malaysia, 2020-2022 (cont'd)*

Negeri State	Lembangan Basin	Sungai River	Nombor stesen Station number	Nilai IKA / WQI value			Kategori IKA/ WQI category (2022)
				2020	2021	2022	
Kelantan	Sg. Kelantan	Sg. Galas	4DKLT014	89	89	81	B/C
		Sg. Galas	4DKLT031	89	90	92	B/C
		Sg. Galas	4DKLT032	87	92	87	B/C
		Sg. Galas	4DKLT033	84	81	91	B/C
		Sg. Galas	4DKLT034	82	79	92	B/C
		Sg. Isos	4DKLT049	73	73	78	ST/SP
		Sg. Kelantan	4DKLT001	82	83	87	B/C
		Sg. Kelantan	4DKLT006	78	87	89	B/C
		Sg. Kelantan	4DKLT010	84	83	82	B/C
		Sg. Kelantan	4DKLT045	80	84	87	B/C
		Sg. Kelantan	4DKLT054	88	89	91	B/C
		Sg. Kelantan	4DKLT055	85	93	90	B/C
		Sg. Kelantan	4DKLT056	81	83	87	B/C
		Sg. Kelesa	4DKLT015	87	94	91	B/C
		Sg. Kenkren	4DKLT047	92	93	94	B/C
		Sg. Kerilla	4DKLT002	92	94	94	B/C
		Sg. Kerilla	4DKLT003	91	94	93	B/C
		Sg. Ketil	4DKLT036	90	97	90	B/C
		Sg. Ketil	4DKLT053	90	96	90	B/C
		Sg. Lebir	4DKLT026	92	94	91	B/C
		Sg. Lebir	4DKLT027	85	87	79	ST/SP
		Sg. Lebir	4DKLT028	88	94	94	B/C
		Sg. Lebir	4DKLT029	84	87	81	B/C
		Sg. Lebir	4DKLT058	88	95	91	B/C
		Sg. Muring	4DKLT059	85	92	90	B/C
		Sg. Nal	4DKLT007	89	93	90	B/C
		Sg. Nal	4DKLT008	88	91	89	B/C
		Sg. Nal	4DKLT009	87	91	88	B/C
		Sg. Nenggiri	4DKLT023	82	83	86	B/C
		Sg. Nenggiri	4DKLT024	83	86	87	B/C
		Sg. Nenggiri	4DKLT025	80	78	91	B/C
		Sg. Pehi	4DKLT011	88	92	91	B/C
		Sg. Pehi	4DKLT044	86	90	91	B/C
		Sg. Pelaur	4DKLT048	90	96	95	B/C

Status kualiti air sungai mengikut stesen, Malaysia, 2020-2022 (samb.)*Water quality status by stations, Malaysia, 2020-2022 (cont'd)*

Negeri State	Lembangan Basin	Sungai River	Nombor stesen Station number	Nilai IKA / WQI value			Kategori IKA/ WQI category (2022)
				2020	2021	2022	
Kelantan	Sg. Kelantan	Sg. Penangau	4DKLT050	78	87	89	B/C
		Sg. Pergau	4DKLT004	91	96	97	B/C
		Sg. Pergau	4DKLT005	90	95	94	B/C
		Sg. Pergau	4DKLT038	94	96	97	B/C
		Sg. Pergau	4DKLT039	94	97	97	B/C
		Sg. Pergau	4DKLT040	94	97	97	B/C
		Sg. Pergau	4DKLT041	90	94	93	B/C
		Sg. Pergau	4DKLT051	91	96	97	B/C
		Sg. Pergau	4DKLT052	92	94	94	B/C
		Sg. Rasau	4DKLT061	80	80	85	ST/SP
		Sg. Relai	4DKLT012	90	91	88	B/C
		Sg. Relai	4DKLT030	88	91	94	B/C
		Sg. Sokor	4DKLT042	86	89	89	B/C
		Sg. Tuang	4DKLT035	90	94	91	B/C
	Sg. Kemasin	Sg. Gali	4DKMS006	79	75	83	B/C
		Sg. Kemasin	4DKMS001	84	90	90	B/C
		Sg. Kemasin	4DKMS003	75	76	76	ST/SP
		Sg. Semerak	4DKMS002	85	91	88	B/C
		Sg. Semerak	4DKMS004	86	89	89	B/C
		Sg. Semerak	4DKMS005	80	77	80	ST/SP
	Sg. Pengkalan Chepa	Sg. Alor B	4DPCH003	65	63	59	T/P
		Sg. Alor Lintah	4DPCH004	76	68	70	ST/SP
		Sg. Keladi	4DPCH002	76	84	89	B/C
		Sg. Pengkalan Chepa	4DPCH005	68	70	70	ST/SP
		Sg. Pengkalan Chepa	4DPCH006	75	82	76	ST/SP
	Sg. Pengkalan Datu	Sg. Raja Gali	4DPCH001	79	87	81	B/C
		Sg. Pasir Hor	4DPDT004	73	77	75	ST/SP
		Sg. Pengkalan Datu	4DPDT001	83	86	88	B/C
		Sg. Pengkalan Datu	4DPDT002	83	87	85	B/C
		Sg. Pengkalan Datu	4DPDT003	86	86	87	B/C
Sarawak	Sg. Balingian	Sg. Balingian	6QBLG001	90	87	84	B/C
		Sg. Balingian	6QBLG002	88	86	89	B/C
	Sg. Baram	Sg. Baram	6QBRM001	79	81	83	B/C
		Sg. Baram	6QBRM002	81	83	83	B/C

Status kualiti air sungai mengikut stesen, Malaysia, 2020-2022 (samb.)*Water quality status by stations, Malaysia, 2020-2022 (cont'd)*

Negeri State	Lembangan Basin	Sungai River	Nombor stesen Station number	Nilai IKA / WQI value			Kategori IKA/ WQI category (2022)
				2020	2021	2022	
Sarawak	Sg. Baram	Sg. Baram	6QBRM003	89	89	88	B/C
		Sg. Baram	6QBRM004	90	88	88	B/C
		Sg. Tutuh	6QBRM005	90	-	87	B/C
	Sg. Kayan	Sg. Kayan	6QKYN001	77	76	76	ST/SP
		Sg. Kayan	6QKYN002	82	83	84	B/C
		Sg. Kayan	6QKYN003	87	88	87	B/C
	Sg. Kemena	Sg. Kemena	6QKMN001	82	82	82	B/C
		Sg. Kemena	6QKMN002	89	83	84	B/C
		Sg. Kemena	6QKMN003	81	80	85	ST/SP
		Sg. Kemena	6QKMN004	91	83	84	B/C
		Sg. Sibiu	6QKMN005	81	79	83	ST/SP
	Sg. Kerian	Sg. Kerian	6QKRN014	82	81	86	B/C
		Sg. Kerian	6QKRN015	89	84	88	B/C
		Sg. Seblak	6QKRN016	84	88	87	B/C
		Sg. Selalang	6QKRN017	92	92	90	B/C
	Sg. Lawas	Sg. Lawas	6QLWS001	89	87	90	B/C
		Sg. Lawas	6QLWS002	87	88	91	B/C
		Sg. Lawas	6QLWS003	89	90	92	B/C
	Sg. Limbang	Sg. Limbang	6QLBG001	88	86	88	B/C
		Sg. Limbang	6QLBG002	87	86	88	B/C
		Sg. Limbang	6QLBG003	88	90	89	B/C
		Sg. Limbang	6QLBG004	90	91	88	B/C
		Sg. Limbang	6QLBG005	92	88	90	B/C
	Sg. Lupar	Sg. Ai	6QLPR001	89	91	88	B/C
		Sg. Ai	6QLPR002	91	91	89	B/C
		Sg. Lupar	6QLPR003	77	83	88	B/C
		Sg. Lupar	6QLPR004	82	85	87	B/C
		Sg. Lupar	6QLPR005	89	85	90	B/C
		Sg. Sekerang	6QLPR006	92	88	87	B/C
		Sg. Seterap	6QLPR007	82	86	89	B/C
		Sg. Undup	6QLPR008	91	85	89	B/C
	Sg. Miri	Sg. Adong	6QMRI001	83	78	57	T/P
		Sg. Dalam	6QMRI002	84	83	80	ST/SP

Status kualiti air sungai mengikut stesen, Malaysia, 2020-2022 (samb.)*Water quality status by stations, Malaysia, 2020-2022 (cont'd)*

Negeri State	Lembangan Basin	Sungai River	Nombor stesen Station number	Nilai IKA / WQI value			Kategori IKA/ WQI category (2022)
				2020	2021	2022	
Sarawak	Sg. Miri	Sg. Lutong	6QMRI003	80	82	83	B/C
		Sg. Lutong	6QMRI004	77	80	74	ST/SP
		Sg. Miri	6QMRI005	87	88	56	T/P
		Sg. Miri	6QMRI006	88	88	60	ST/SP
		Sg. Padang Liku	6QMRI007	89	88	83	B/C
	Sg. Mukah	Sg. Mukah	6QMKH001	85	80	81	B/C
		Sg. Mukah	6QMKH002	89	82	86	B/C
		Sg. Mukah	6QMKH003	89	81	86	B/C
		Sg. Mukah	6QMKH004	89	87	88	B/C
		Sg. Mukah	6QMKH005	89	84	87	B/C
	Sg. Niah	Sg. Niah	6QNIA001	86	87	85	B/C
		Sg. Niah	6QNIA002	86	86	86	B/C
		Sg. Sekaloh	6QNIA003	68	64	79	ST/SP
		Sg. Sekaloh	6QNIA004	87	86	84	B/C
	Sg. Oya	Sg. Oya	6QOYA001	79	76	83	B/C
		Sg. Oya	6QOYA001	89	81	87	B/C
		Sg. Oya	6QOYA001	89	89	86	B/C
	Sg. Rajang	Sg. Baloi	6QRJG019	89	-	89	B/C
		Sg. Binatang	6QRJG004	89	89	87	B/C
		Sg. Daro	6QRJG021	80	62	66	ST/SP
		Sg. Jemoreng	6QRJG022	80	63	66	ST/SP
		Sg. Julau	6QRJG005	88	86	85	B/C
		Sg. Kanowit	6QRJG006	89	87	87	B/C
		Sg. Meradong	6QRJG003	80	82	86	B/C
		Sg. Pakan	6QRJG020	88	89	88	B/C
		Sg. Pila Parit	6QRJG023	62	77	78	ST/SP
		Sg. Rajang	6QRJG008	83	86	86	B/C
		Sg. Rajang	6QRJG009	84	86	87	B/C
		Sg. Rajang	6QRJG010	82	86	85	B/C
		Sg. Rajang	6QRJG011	80	85	87	B/C
		Sg. Rajang	6QRJG012	85	84	89	B/C
		Sg. Rajang	6QRJG013	87	86	87	B/C
		Sg. Rajang	6QRJG014	85	84	86	B/C
		Sg. Rajang	6QRJG015	85	83	84	B/C
		Sg. Rajang	6QRJG016	85	86	87	B/C
		Sg. Rajang	6QRJG017	90	86	86	B/C

Status kualiti air sungai mengikut stesen, Malaysia, 2020-2022 (samb.)*Water quality status by stations, Malaysia, 2020-2022 (cont'd)*

Negeri State	Lembangan Basin	Sungai River	Nombor stesen Station number	Nilai IKA / WQI value			Kategori IKA/ WQI category (2022)
				2020	2021	2022	
Sarawak	Sg. Rajang	Sg. Rajang	6QRJG018	90	84	87	B/C
		Sg. Salim	6QRJG007	83	81	86	B/C
		Sg. Sarikei	6QRJG001	80	86	87	B/C
		Sg. Sarikei	6QRJG002	89	90	88	B/C
	Sg. Sadong	Sg. Karangan	6QSDG001	68	69	76	ST/SP
		Sg. Karangan	6QSDG002	87	87	88	B/C
		Sg. Sadong	6QSDG003	73	81	84	B/C
		Sg. Sadong	6QSDG004	72	66	78	ST/SP
		Sg. Sadong	6QSDG005	88	90	87	B/C
		Sg. Sadong	6QSDG006	90	91	88	B/C
		Sg. Tarat	6QSDG007	91	90	90	B/C
	Sg. Sarawak	Sg. Kelantan	6QSWK017	74	59	68	ST/SP
		Sg. Kuap	6QSWK009	79	88	86	B/C
		Sg. Kuap	6QSWK010	87	88	89	B/C
		Sg. Maong Kiri	6QSWK0 11	72	73	82	B/C
		Sg. Samarahan	6QSWK013	65	63	66	ST/SP
		Sg. Samarahan	6QSWK014	80	85	87	B/C
		Sg. Sarawak	6QSWK001	81	84	84	B/C
		Sg. Sarawak	6QSWK003	83	85	87	B/C
		Sg. Sarawak	6QSWK004	88	87	88	B/C
		Sg. Sarawak	6QSWK006	84	80	84	B/C
		Sg. Sarawak	6QSWK007	90	88	91	B/C
		Sg. Sarawak	6QSWK008	91	89	90	B/C
		Sg. Sarawak Kanan	6QSWK002	82	84	85	B/C
		Sg. Sarawak Kiri	6QSWK005	88	87	87	B/C
		Sg. Semadang	6QSWK016	89	90	90	B/C
		Sg. Semenggoh	6QSWK012	71	78	83	B/C
		Sg. Tabuan	6QSWK015	77	76	78	ST/SP
		Sg. Tapah	6QSWK018	89	91	90	B/C
	Sg. Saribas	Sg. Layar	6QSRB002	85	88	87	B/C
		Sg. Layar	6QSRB003	87	90	88	B/C
		Sg. Saribas	6QSRB001	74	79	87	B/C
	Sg. Semunsam	Sg. Semunsam	6QSMS001	87	80	85	B/C
	Sg. Sibuti	Sg. Kabuloh	6QSBT001	76	61	70	ST/SP
		Sg. Kabuloh	6QSBT002	69	64	87	B/C

Status kualiti air sungai mengikut stesen, Malaysia, 2020-2022 (samb.)*Water quality status by stations, Malaysia, 2020-2022 (cont'd)*

Negeri State	Lembangan Basin	Sungai River	Nombor stesen Station number	Nilai IKA / WQI value			Kategori IKA/ WQI category (2022)
				2020	2021	2022	
Sarawak	Sg. Sibuti	Sg. Kejapil	6QSBT003	88	89	85	B/C
		Sg. Satap	6QSBT004	88	84	84	B/C
		Sg. Sibuti	6QSBT005	82	84	77	B/C
		Sg. Sibuti	6QSBT006	87	88	84	ST/SP
	Sg. Similajau	Sg. Similajau	6QSML001	90	86	86	B/C
		Sg. Similajau	6QSML002	89	84	88	B/C
	Sg. Suai	Sg. Suai	6QSUA001	88	87	85	B/C
	Sg. Tatau	Sg. Tatau	6QTTU001	88	85	86	B/C
	Sg. Trusan	Sg. Trusan	6QTSN001	88	88	90	B/C
Sabah	Sg. Apas	Sg. Apas	5SAPS001	89	90	92	B/C
	Sg. Balung	Sg. Balung	5SBLU001	87	91	92	B/C
	Sg. Bengkoka	Sg. Bengkoka	5SBKK001	90	91	90	B/C
		Sg. Bengkoka	5SBKK002	86	86	88	B/C
	Sg. Bingkongan	Sg. Bandau	5SBKG001	91	92	92	B/C
		Sg. Bingkongan	5SBKG005	92	94	93	B/C
		Sg. Bingkongan	5SBKG006	91	94	94	B/C
		Sg. Menggaris	5SBKG002	93	93	90	B/C
		Sg. Menggaris	5SBKG003	92	92	93	B/C
		Sg. Tandek	5SBKG004	91	91	91	B/C
	Sg. Bongawan	Sg. Bongawan	5SBGW001	87	87	88	B/C
	Sg. Brantian	Sg. Brantian	5SBTN001	86	84	90	B/C
	Sg. Kalabakan	Sg. Kalabakan	5SKBK001	85	85	90	B/C
		Sg. Kalabakan	5SKBK002	84	84	86	B/C
		Sg. Kalabakan	5SKBK003	82	83	86	B/C
	Sg. Kalumpang	Sg. Kalumpang	5SKLP001	86	86	91	B/C
		Sg. Kalumpang	5SKLP002	86	90	88	B/C
		Sg. Kalumpang	5SKLP003	84	85	86	B/C
		Sg. Pang Burong 1	5SKLP004	83	86	86	B/C
		Sg. Pang Burong 2	5SKLP005	69	85	80	ST/SP
	Sg. Kedamaian	Sg. Kedamaian	5SKDI004	90	93	92	B/C
		Sg. Tempasuk	5SKDI001	87	93	91	B/C
		Sg. Tempasuk	5SKDI002	91	92	92	B/C
		Sg. Wariu	5SKDI003	91	93	93	B/C
	Sg. Kimanis	Sg. Kimanis	5SKMA001	87	90	92	B/C

Status kualiti air sungai mengikut stesen, Malaysia, 2020-2022 (samb.)*Water quality status by stations, Malaysia, 2020-2022 (cont'd)*

Negeri State	Lembangan Basin	Sungai River	Nombor stesen Station number	Nilai IKA / WQI value			Kategori IKA/ WQI category (2022)
				2020	2021	2022	
Sabah	Sg. Kinabatangan	Sg. Karamuak	5SKBT006	91	92	92	B/C
		Sg. Kinabatangan	5SKBT001	85	86	83	B/C
		Sg. Kinabatangan	5SKBT002	82	84	85	B/C
		Sg. Kinabatangan	5SKBT004	84	87	84	B/C
		Sg. Kinabatangan	5SKBT005	86	85	83	B/C
		Sg. Koyah	5SKBT003	87	89	88	B/C
		Sg. Leepang	5SKBT009	84	85	84	B/C
		Sg. Menanggul	5SKBT008	81	86	86	B/C
		Sg. Pin	5SKBT010	86	87	86	B/C
		Sg. Takala	5SKBT007	85	88	87	B/C
	Sg. Labok	Sg. Kinipir	5SLBK001	90	91	90	B/C
		Sg. Kinipir	5SLBK002	86	91	91	B/C
		Sg. Labok	5SLBK006	87	86	88	B/C
		Sg. Liwagu	5SLBK003	88	89	86	B/C
		Sg. Liwagu	5SLBK004	88	88	91	B/C
		Sg. Maliau	5SLBK005	92	94	93	B/C
		Sg. Tungud	5SLBK007	88	91	85	B/C
	Sg. Lakutan	Sg. Lakutan	5SLKT001	89	93	88	B/C
		Sg. Darau	5SLKS008	80	83	83	B/C
	Sg. Likas	Sg. Inanam	5SLKS001	79	81	80	ST/SP
		Sg. Inanam	5SLKS002	84	87	90	B/C
		Sg. Inanam	5SLKS003	92	93	93	B/C
		Sg. Likas	5SLKS004	77	73	78	ST/SP
		Sg. Likas	5SLKS005	78	77	80	ST/SP
		Sg. Menggatal	5SLKS006	81	87	89	B/C
		Sg. Menggatal	5SLKS007	87	91	92	B/C
	Sg. Lingkungan	Sg. Bukau	5SLKG002	88	92	87	B/C
		Sg. Lingkungan	5SLKG001	91	93	89	B/C
	Sg. Membakut	Sg. Membakut	5SMBT001	85	87	89	B/C
	Sg. Menggalong	Sg. Menggalong	5SMGL001	86	91	85	B/C
		Sg. Menggalong	5SMGL002	92	93	92	B/C
	Sg. Merotai	Sg. Merotai	5SMRT001	88	90	91	B/C
		Sg. Merotai	5SMRT002	92	94	92	B/C
		Sg. Merotai	5SMRT003	87	90	87	B/C

Status kualiti air sungai mengikut stesen, Malaysia, 2020-2022 (samb.)*Water quality status by stations, Malaysia, 2020-2022 (cont'd)*

Negeri State	Lembangan Basin	Sungai River	Nombor stesen Station number	Nilai IKA / WQI value			Kategori IKA/ WQI category (2022)
				2020	2021	2022	
Sabah	Sg. Mounad	Sg. Mounad	5SMND001	85	89	88	B/C
		Sg. Mounad	5SMND002	86	86	89	B/C
	Sg. Moyog	Sg. Moyog	5SMYG001	86	88	91	B/C
		Sg. Moyog	5SMYG002	89	92	91	B/C
		Sg. Moyog	5SMYG003	92	94	93	B/C
		Sg. Moyog	5SMYG004	92	94	92	B/C
	Sg. Padas	Sg. Bunsit	5SPDS001	91	93	92	B/C
		Sg. Liawan	5SPDS002	91	91	92	B/C
		Sg. Padas	5SPDS003	86	87	88	B/C
		Sg. Padas	5SPDS004	88	90	88	B/C
		Sg. Padas	5SPDS005	86	88	87	B/C
		Sg. Padas	5SPDS011	85	88	82	B/C
		Sg. Pangatan	5SPDS006	87	88	87	B/C
		Sg. Pegalan	5SPDS008	89	91	90	B/C
		Sg. Pegalan	5SPDS009	87	86	86	B/C
		Sg. Pegalan	5SPDS010	86	87	84	B/C
		Sg. Tandulu	5SPDS007	91	92	92	B/C
	Sg. Papar	Sg. Paitan	5SPTN001	85	91	90	B/C
		Sg. Papar	5SPPR001	89	91	90	B/C
		Sg. Papar	5SPPR002	90	91	90	B/C
		Sg. Papar	5SPPR003	89	90	88	B/C
		Sg. Papar	5SPPR004	90	91	93	B/C
	Sg. Sapi	Sg. Sapi	5SSAP002	85	85	83	B/C
		Sg. Sapi	5SSAP003	86	86	84	B/C
		Sg. Sapi	5SSAP004	87	88	87	B/C
		Sg. Sualong	5SSAP001	92	92	93	B/C
	Sg. Segaliud	Sg. Segaliud	5SSLD001	86	85	81	B/C
		Sg. Segaliud	5SSLD002	87	86	84	B/C
	Sg. Segama	Sg. Segama	5SSGM001	86	87	86	B/C
		Sg. Segama	5SSGM002	85	88	87	B/C
		Sg. Segama	5SSGM003	85	88	87	B/C
	Sg. Sembulan	Sg. Sembulan	5SSBL001	84	81	74	ST/SP
		Sg. Sembulan	5SSBL002	74	80	69	ST/SP

Status kualiti air sungai mengikut stesen, Malaysia, 2020-2022 (samb.)*Water quality status by stations, Malaysia, 2020-2022 (cont'd)*

Negeri State	Lembangan Basin	Sungai River	Nombor stesen Station number	Nilai IKA / WQI value			Kategori IKA/ WQI category (2022)
				2020	2021	2022	
Sabah	Sg. Silabukan	Sg. Silabukan	5SSBK001	86	87	83	B/C
		Sg. Silabukan	5SSBK002	89	91	91	B/C
	Sg. Sugut	Sg. Bongkud	5SSUG001	91	92	93	B/C
		Sg. Lohan	5SSUG002	91	92	93	B/C
		Sg. Merali	5SSUG003	88	91	90	B/C
		Sg. Sugut	5SSUG004	91	91	91	B/C
		Sg. Sugut	5SSUG005	88	92	91	B/C
		Sg. Sugut	5SSUG006	85	89	87	B/C
	Sg. Tawau	Sg. Tawau	5STWU001	77	83	78	ST/SP
		Sg. Tawau	5STWU002	83	88	88	B/C
		Sg. Tawau	5STWU003	91	93	92	B/C
		Sg. Tawau	5STWU004	91	93	93	B/C
	Sg. Telipok	Sg. Telipok	5STLP001	70	70	82	B/C
		Sg. Telipok	5STLP002	90	90	91	B/C
	Sg. Tenghilan	Sg. Tenghilan	5STHL001	92	92	90	B/C
	Sg. Tingkayu	Sg. Tingkayu	5STKY001	84	85	85	B/C
		Sg. Tingkayu	5STKY002	86	86	84	B/C
	Sg. Tuaran	Sg. Damit	5STUA001	89	87	88	B/C
		Sg. Damit	5STUA002	87	87	90	B/C
		Sg. Song Sai	5STUA003	90	92	92	B/C
		Sg. Tuaran	5STUA004	92	93	93	B/C
		Sg. Tuaran	5STUA005	92	93	93	B/C
	Sg. Tungku	Sg. Tungku	5STKU001	89	90	88	B/C
		Sg. Tungku	5STKU002	90	89	90	B/C
	Sg. Umas-Umas	Sg. Umas-Umas	5SUSM001	83	84	89	B/C

Nota:

Notes:

B/C: Bersih/ Clean**ST/SP: Sederhana tercemar/ Slightly polluted****T/P: Tercemar/ Polluted****Sumber: Jabatan Alam Sekitar**

Source: Department of Environment

Status kualiti air marin di kawasan pantai, Malaysia, 2020-2022*Marine water quality status for coastal, Malaysia, 2020-2022*

Negeri State	Kawasan Area	Nilai IKAM MWQI Value			Kategori Category (2022)
		2020	2021	2022	
Kedah	Pantai Merdeka	71	85	88	Baik/Good
	Langkawi Island Resort	93	94	94	Terbaik/ Excellent
	Pantai Kok	95	90	83	Baik/Good
	Pantai Kuah	89	88	90	Terbaik/ Excellent
	Pantai Pasir Tengkorak	93	96	93	Terbaik/ Excellent
	Pantai Teluk Burau	89	94	86	Baik/Good
	Pantai Teluk Nibong	94	86	92	Terbaik/ Excellent
	Pantai Tengah	96	92	92	Terbaik/ Excellent
	Pantai Beras Basah	95	92	96	Terbaik/ Excellent
Pulau Pinang	Gertak Sanggul	84	81	83	Baik/Good
	Kawasan Perindustrian Bayan Lepas I	56	72	60	Sederhana/ Moderate
	Pantai Bersih	58	75	86	Baik/Good
	Pantai Miami	81	70	86	Baik/Good
	Pantai Pasir Panjang	81	93	95	Terbaik/ Excellent
	Batu Ferringgi (Casuarina)	58	83	82	Baik/Good
	Luar Pantai Teluk Bahang	83	81	88	Baik/Good
	Persiaran Gurney	59	60	79	Sederhana/ Moderate
	Rumah Pam Baru Perai	61	68	76	Sederhana/ Moderate
	Rumah Pam Lama Perai	60	65	59	Sederhana/ Moderate
	Selat PP Selatan (Jelutong)	55	59	59	Sederhana/ Moderate
	Tanjung Bungah	70	67	72	Sederhana/ Moderate
	Teluk Tempoyak	69	70	63	Sederhana/ Moderate
	Batu Maung	56	69	58	Sederhana/ Moderate
	Pantai Sungai Batu Ferringhi 3	84	86	92	Terbaik/ Excellent
	Pantai Sungai Batu Ferringhi 2	74	90	94	Terbaik/ Excellent
	Pantai Sungai Batu Ferringhi 1	85	91	91	Terbaik/ Excellent

Status kualiti air marin di kawasan pantai, Malaysia, 2020-2022 (samb.)*Marine water quality status for coastal, Malaysia, 2020-2022 (cont'd)*

Negeri State	Kawasan Area	Nilai IKAM MWQI Value			Kategori Category (2022)
		2020	2021	2022	
Perak	Pantai Pasir Bogak	93	95	94	Terbaik/ Excellent
	Pantai Teluk Dalam	89	94	92	Terbaik/ Excellent
	Pantai Teluk Batik	84	78	89	Baik/Good
	Pantai Tanjung Batu	83	93	94	Terbaik/ Excellent
	Pantai Teluk Rubiah	92	90	81	Baik/Good
	Pantai Damai Laut	93	94	91	Terbaik/ Excellent
	Pantai Teluk Senangin	90	90	93	Terbaik/ Excellent
	Pantai Pasir Panjang	94	91	95	Terbaik/ Excellent
Selangor	Pantai Bagan Lalang	91	84	84	Baik/Good
	Pantai Morib	68	68	84	Baik/Good
	Selat Pulau Babi	73	87	91	Terbaik/ Excellent
	Selat Klang Utara	55	62	56	Sederhana/ Moderate
	Pantai Remis	63	83	79	Sederhana/ Moderate
	Pantai Klanang	71	74	69	Sederhana/ Moderate
Negeri Sembilan	Bagan Pinang	85	91	90	Terbaik/ Excellent
	Telok Sinting	86	87	94	Terbaik/ Excellent
	Port Dickson Bandar	74	88	88	Baik/Good
	Port Dickson Batu 4	86	88	89	Baik/Good
	Port Dickson Batu 5	67	73	81	Baik/Good
	Port Dickson Batu 6	90	90	93	Terbaik/ Excellent
	Port Dickson Batu 7	92	93	95	Terbaik/ Excellent
	Port Dickson Batu 8	85	93	95	Terbaik/ Excellent
	Port Dickson Batu 10	92	92	97	Terbaik/ Excellent
	Port Dickson Janakuasa TNB	89	70	90	Terbaik/ Excellent
	Telok Pelanduk	83	91	94	Terbaik/ Excellent
	Pantai Cermin	83	94	94	Terbaik/ Excellent
	Pantai Telok Kemang	94	91	95	Terbaik/ Excellent
	Pantai Seri Purnama	90	94	96	Terbaik/ Excellent

Status kualiti air marin di kawasan pantai, Malaysia, 2020-2022 (samb.)*Marine water quality status for coastal, Malaysia, 2020-2022 (cont'd)*

Negeri State	Kawasan Area	Nilai IKAM MWQI Value			Kategori Category (2022)
		2020	2021	2022	
Melaka	Pantai Rombang	89	88	88	Baik/Good
	Pantai Kundur	90	89	83	Baik/Good
	Pantai Tanjung Bidara	90	69	87	Baik/Good
	Teluk Gong	83	60	90	Terbaik/ Excellent
	Pulau Melaka Point A ¹	91	89	83	Baik/Good
	Pulau Melaka Point A ²	79	80	83	Baik/Good
	Pulau Melaka Point B ¹	58	58	57	Sederhana/ Moderate
	Pulau Melaka Point B ²	57	57	57	Sederhana/ Moderate
	Pulau Klebang	78	87	89	Baik/Good
Johor	Tanjung Bin	90	90	91	Terbaik/ Excellent
	Pelabuhan Tanjung Pelepas	92	91	82	Baik/Good
	Hadapan Jabatan Laut	87	82	81	Baik/Good
	Pantai Stulang Laut	48	56	55	Sederhana/ Moderate
	Jeti Teluk Jawa	62	70	59	Sederhana/ Moderate
	Pelabuhan Pasir Gudang	57	59	66	Sederhana/ Moderate
	Hadapan HSAJB	49	58	51	Sederhana/ Moderate
	Pantai Lido	44	54	50	Sederhana/ Moderate
	Pantai Teluk Mahkota	90	93	95	Terbaik/ Excellent
	Pantai Tanjung Leman	83	97	94	Terbaik/ Excellent
	Pantai Sri Pantai	87	91	95	Terbaik/ Excellent
	Tanjung Merak	89	85	89	Baik/Good
	Tanjung Pengelih	90	92	88	Baik/Good
	Pantai Tanjong Stapa	91	72	77	Sederhana/ Moderate
	Pantai Teluk Gorek	83	93	93	Terbaik/ Excellent
	Pantai Air Papan	95	92	93	Terbaik/ Excellent
	Jeti Kukup	59	62	83	Baik/Good
	Pasir Gogok	92	89	89	Baik/Good

Status kualiti air marin di kawasan pantai, Malaysia, 2020-2022 (samb.)*Marine water quality status for coastal, Malaysia, 2020-2022 (cont'd)*

Negeri State	Kawasan Area	Nilai IKAM MWQI Value			Kategori Category (2022)
		2020	2021	2022	
Johor	Tanjong Buai	75	91	87	Baik/ <i>Good</i>
	Pantai Desaru	95	94	95	Terbaik/ <i>Excellent</i>
	Tanjung Sepang	92	90	93	Terbaik/ <i>Excellent</i>
	Tanjung Penyusup	83	93	93	Terbaik/ <i>Excellent</i>
	Pantai Sungai Lurus	74	88	85	Baik/ <i>Good</i>
	Punggur	69	90	79	Sederhana/ <i>Moderate</i>
	Pantai Penyabung	82	95	96	Terbaik/ <i>Excellent</i>
	Tanjung Resang	90	92	94	Terbaik/ <i>Excellent</i>
	Tanjung Balau	93	94	94	Terbaik/ <i>Excellent</i>
	Batu Layar	90	92	95	Terbaik/ <i>Excellent</i>
	Tanjung Sengat	72	85	92	Terbaik/ <i>Excellent</i>
Pahang	Pantai Cherating (Club Med A)	91	95	80	Baik/ <i>Good</i>
	Pantai Cherating (Club Med B)	94	97	87	Baik/ <i>Good</i>
	Pantai Cherating (Legend A)	96	93	93	Terbaik/ <i>Excellent</i>
	Pantai Cherating (Legend B)	96	95	94	Terbaik/ <i>Excellent</i>
	Pantai Muhibbah Balok A	73	90	93	Terbaik/ <i>Excellent</i>
	Pantai Muhibbah Balok B	67	74	90	Terbaik/ <i>Excellent</i>
	Pantai Batu Hitam A	76	92	93	Terbaik/ <i>Excellent</i>
	Pantai Batu Hitam B	73	84	96	Terbaik/ <i>Excellent</i>
	Pantai Berserah A	76	93	93	Terbaik/ <i>Excellent</i>
	Pantai Berserah B	60	90	90	Terbaik/ <i>Excellent</i>
	Pantai Teluk Cempedak A	84	94	95	Terbaik/ <i>Excellent</i>
	Pantai Teluk Cempedak B	95	93	95	Terbaik/ <i>Excellent</i>
	Pantai Teluk Gelora A	60	72	70	Sederhana/ <i>Moderate</i>
	Pantai Teluk Gelora B	59	59	59	Sederhana/ <i>Moderate</i>
	Pantai Sepat A	92	94	96	Terbaik/ <i>Excellent</i>
	Pantai Sepat B	92	95	95	Terbaik/ <i>Excellent</i>
	Pantai Legenda A	97	92	95	Terbaik/ <i>Excellent</i>

Status kualiti air marin di kawasan pantai, Malaysia, 2020-2022 (samb.)*Marine water quality status for coastal, Malaysia, 2020-2022 (cont'd)*

Negeri State	Kawasan Area	Nilai IKAM MWQI Value			Kategori Category (2022)
		2020	2021	2022	
Pahang	Pantai Legenda B	96	96	95	Terbaik/ Excellent
	Pantai Kuala Api-Api	85	94	95	Terbaik/ Excellent
	Pantai Tanjung Batu	85	94	92	Terbaik/ Excellent
	Pantai Chendor	87	92	84	Baik/Good
	Pantai Lanjut	85	94	91	Terbaik/ Excellent
Terengganu	Pantai Batu Buruk	93	88	95	Terbaik/ Excellent
	Pantai Bukit Keluang	95	96	95	Terbaik/ Excellent
	Pantai Chendering	93	95	95	Terbaik/ Excellent
	Pantai Rantau Abang	95	96	97	Terbaik/ Excellent
	KIPC Utara	78	95	94	Terbaik/ Excellent
	KIPC Tengah	88	94	94	Terbaik/ Excellent
	KIPC Selatan	88	95	95	Terbaik/ Excellent
	Pantai Rhu 10	95	97	90	Terbaik/ Excellent
	Pantai Tok Jembal	96	95	96	Terbaik/ Excellent
	Pantai Kelulut	93	96	97	Terbaik/ Excellent
	Pantai Teluk Ketapang	95	96	96	Terbaik/ Excellent
	Pantai Kuala Abang	94	95	97	Terbaik/ Excellent
	Pantai Telok Kalong	94	95	97	Terbaik/ Excellent
	Pantai Sura	94	94	96	Terbaik/ Excellent
	Pantai Tanjung Bidara	93	94	97	Terbaik/ Excellent
	Pantai Kemasik	90	97	97	Terbaik/ Excellent
Kelantan	Pantai Seri Tujuh	84	93	94	Terbaik/ Excellent
	Pantai Cahaya Bulan	92	95	95	Terbaik/ Excellent
	Pantai Sabak	89	95	95	Terbaik/ Excellent
	Pantai Irama Bachok	66	95	93	Terbaik/ Excellent
	Pantai Bisikan Bayu	83	95	94	Terbaik/ Excellent
	Pantai Melawi	83	95	95	Terbaik/ Excellent
Sarawak	Pantai Sematan	72	93	90	Terbaik/ Excellent
	Pantai Pandan	75	92	86	Baik/Good

Status kualiti air marin di kawasan pantai, Malaysia, 2020-2022 (samb.)*Marine water quality status for coastal, Malaysia, 2020-2022 (cont'd)*

Negeri State	Kawasan Area	Nilai IKAM MWQI Value			Kategori Category (2022)
		2020	2021	2022	
Sarawak	Pantai Pasir Putih	80	84	85	Baik/Good
	Pantai Bako	85	89	91	Terbaik/Excellent
	Pantai Damai	68	86	89	Baik/Good
	Pantai Tanjung Kembang	86	77	90	Terbaik/Excellent
	Pantai Harmoni Mukah	60	67	73	Sederhana/Moderate
	Pantai Tanjung Batu	56	81	74	Sederhana/Moderate
	Pantai Likau	62	88	66	Sederhana/Moderate
	Pantai Emas	62	75	66	Sederhana/Moderate
	Pantai Piasau	70	85	74	Sederhana/Moderate
	Pantai Brighton	79	75	56	Sederhana/Moderate
	Pantai Esplaned	70	83	56	Sederhana/Moderate
	Pantai Beraya	65	83	57	Sederhana/Moderate
	Pantai Bungai	68	75	66	Sederhana/Moderate
	Pantai Belawai	66	67	92	Terbaik/Excellent
	Pantai Mukah	49	89	89	Baik/Good
	Tanjung Kidurong	63	80	90	Terbaik/Excellent
	Pasir Pandak	74	91	91	Terbaik/Excellent
	Rambungan	69	93	83	Baik/Good
	Sri Tanjung Lawas	71	68	67	Sederhana/Moderate
	Pantai Luak	77	84	56	Sederhana/Moderate
	Pasir Panjang	55	86	78	Sederhana/Moderate
Sabah	Pantai Teluk Brunei 1	67	73	61	Sederhana/Moderate
	Pantai Teluk Brunei 2	69	84	67	Sederhana/Moderate
	Pantai Teluk Brunei 3	62	75	67	Sederhana/Moderate
	Pantai Teluk Brunei 4	72	84	60	Sederhana/Moderate
	Pantai Teluk Brunei 5	64	69	59	Sederhana/Moderate

Status kualiti air marin di kawasan pantai, Malaysia, 2020-2022 (samb.)*Marine water quality status for coastal, Malaysia, 2020-2022 (cont'd)*

Negeri State	Kawasan Area	Nilai IKAM MWQI Value			Kategori Category (2022)
		2020	2021	2022	
Sabah	Pantai Teluk Brunei 6	67	58	59	Sederhana/ Moderate
	Borneo Golf Seawater	72	59	67	Sederhana/ Moderate
	Pantai Manis Papar	60	59	60	Sederhana/ Moderate
	Pantai Melinsung	67	70	59	Sederhana/ Moderate
	Pantai Tanjung Aru (Roll Skating)	67	65	57	Sederhana/ Moderate
	Pantai Tanjung Aru (No. 3)	64	76	57	Sederhana/ Moderate
	Pantai Lok Kawi	72	65	58	Sederhana/ Moderate
	Pantai Tanjung Aru (Rest Lido)	63	69	58	Sederhana/ Moderate
	Pantai Dalit Tuaran	78	58	58	Sederhana/ Moderate
	Mangrove Paradise	73	58	58	Sederhana/ Moderate
	Pantai Sabandar	75	58	58	Sederhana/ Moderate
	Pantai Bak-Bak Kudat	62	76	85	Baik/Good
	Pasir Putih Sandakan	63	83	82	Baik/Good
	Pantai TLDM	72	75	62	Sederhana/ Moderate
	Pantai Batu Sapi	61	76	72	Sederhana/ Moderate
	Pantai Ulu Tungku	66	57	58	Sederhana/ Moderate
	Pantai Sarina Kunak	74	58	58	Sederhana/ Moderate
	Pantai Kg. Lamak	64	57	61	Sederhana/ Moderate
	Pantai Tinagat	58	58	68	Sederhana/ Moderate
W.P. Labuan	Pulau Papan	62	59	58	Sederhana/ Moderate
	Kiamsam	68	58	58	Sederhana/ Moderate
	Sungai Pagar	61	58	59	Sederhana/ Moderate
	Layang-Layangan	69	57	58	Sederhana/ Moderate
	Tanjung Aru	58	59	60	Sederhana/ Moderate

Sumber: Jabatan Alam Sekitar
Source: Department of Environment

Status kualiti air marin di kawasan muara sungai, Malaysia, 2020-2022
Marine water quality status for estuary, Malaysia, 2020-2022

Negeri State	Kawasan Area	Nilai IKAM MWQI Value			Kategori Category (2022)
		2020	2021	2022	
Perlis	Kuala Sungai Baru	56	57	57	Sederhana/ Moderate
	Kuala Sungai Perlis	54	57	57	Sederhana/ Moderate
Kedah	Kuala Kedah	53	57	56	Sederhana/ Moderate
	Kuala Jerlun	57	55	54	Sederhana/ Moderate
	Kuala Segantang Garam	70	69	72	Sederhana/ Moderate
	Kuala Sungai Muda	58	56	57	Sederhana/ Moderate
Pulau Pinang	Kuala Sungai Jawi	38	43	52	Sederhana/ Moderate
	Kuala Sungai Juru	30	42	53	Sederhana/ Moderate
	Kuala Sungai Kerian	54	56	73	Sederhana/ Moderate
	Kuala Sungai Pinang	53	52	54	Sederhana/ Moderate
	Kuala Sungai Perai	43	55	55	Sederhana/ Moderate
	Kuala Sungai Tengah	52	57	81	Baik/Good
	Kuala Sungai Pinang (Balik Pulau)	48	56	58	Sederhana/ Moderate
Perak	Kuala Sungai Manjung	75	73	85	Baik/Good
	Kuala Sungai Gula	53	54	79	Sederhana/ Moderate
	Kuala Sungai Kurau	53	54	64	Sederhana/ Moderate
	Kuala Sungai Tanjung Piandang	38	45	50	Sederhana/ Moderate
	Kuala Sungai Sepetang	48	55	53	Sederhana/ Moderate
	Kuala Sungai Perak	58	55	75	Sederhana/ Moderate
Selangor	Kuala Sungai Sepang	57	66	72	Sederhana/ Moderate
	Kuala Sungai Sepang (Kecil)	88	80	58	Sederhana/ Moderate
	Kuala Sungai Sepang (Kawalan)	88	81	91	Terbaik/ Excellent
	Kuala Sungai Langat (Jugra)	44	54	58	Sederhana/ Moderate
	Kuala Sungai Klang	35	40	43	Tercemar/Poor
	Kuala Sungai Langat (Lumut)	45	54	55	Sederhana/ Moderate
	Kuala Sungai Buloh	58	57	56	Sederhana/ Moderate
	Kuala Sungai Selangor	45	43	51	Sederhana/ Moderate

Status kualiti air marin di kawasan muara sungai, Malaysia, 2020-2022 (samb.)*Marine water quality status for estuary, Malaysia, 2020-2022 (cont'd)*

Negeri State	Kawasan Area	Nilai IKAM MWQI Value			Kategori Category (2022)
		2020	2021	2022	
Selangor	Kuala Sungai Tengi	43	51	48	Tercemar/ <i>Poor</i>
	Kuala Sungai Bernam	55	55	61	Sederhana/ <i>Moderate</i>
Negeri Sembilan	Kuala Sungai Linggi	64	68	55	Sederhana/ <i>Moderate</i>
	Kuala Sungai Lukut	52	56	53	Sederhana/ <i>Moderate</i>
Melaka	Kuala Sungai Melaka	56	60	63	Sederhana/ <i>Moderate</i>
	Kuala Sungai Sri Melaka	53	50	54	Sederhana/ <i>Moderate</i>
	Kuala Sungai Merlimau	55	58	57	Sederhana/ <i>Moderate</i>
	Kuala Sungai Kesang	85	74	57	Sederhana/ <i>Moderate</i>
	Kuala Sungai Sebatu	63	63	75	Sederhana/ <i>Moderate</i>
	Kuala Sungai Melaka 2	54	56	54	Sederhana/ <i>Moderate</i>
	Kuala Sungai Baru	56	57	64	Sederhana/ <i>Moderate</i>
	Kuala Sungai Lereh	57	55	56	Sederhana/ <i>Moderate</i>
Johor	Kuala Sungai Segget	41	51	46	Tercemar/ <i>Poor</i>
	Kuala Sungai Laloh	42	55	54	Sederhana/ <i>Moderate</i>
	Kuala Sungai Johor	88	92	92	Terbaik/ <i>Excellent</i>
	Kuala Sungai Batu Pahat	67	58	57	Sederhana/ <i>Moderate</i>
	Kuala Sungai Muar	57	57	55	Sederhana/ <i>Moderate</i>
	Kuala Sungai Mersing	62	59	59	Sederhana/ <i>Moderate</i>
Pahang	Kuala Kuantan	59	58	58	Sederhana/ <i>Moderate</i>
	Kuala Rompin Kecil	79	72	79	Sederhana/ <i>Moderate</i>
	Kuala Pahang	59	57	59	Sederhana/ <i>Moderate</i>
	Kuala Nenasi	93	85	91	Terbaik/ <i>Excellent</i>
	Kuala Sungai Balok	59	55	65	Sederhana/ <i>Moderate</i>
Terengganu	Kuala Sungai Besut	59	74	70	Sederhana/ <i>Moderate</i>
	Kuala Sungai Dungun	60	69	65	Sederhana/ <i>Moderate</i>

Status kualiti air marin di kawasan muara sungai, Malaysia, 2020-2022 (samb.)*Marine water quality status for estuary, Malaysia, 2020-2022 (cont'd)*

Negeri State	Kawasan Area	Nilai IKAM MWQI Value			Kategori Category (2022)
		2020	2021	2022	
Terengganu	Kuala Sungai Ibai	77	90	87	Baik/Good
	Kuala Sungai Kerteh	73	58	75	Sederhana/ Moderate
	Kuala Sungai Marang	71	84	84	Baik/Good
	Kuala Sungai Paka	73	65	87	Baik/Good
	Kuala Sungai Setiu	64	92	75	Sederhana/ Moderate
	Kuala Sungai Terengganu	59	66	59	Sederhana/ Moderate
	Kuala Sungai Kemaman/ Chukai	60	58	59	Sederhana/ Moderate
	Tioxide Utara (Kg. Bukit Kuang, Kijal)	94	94	97	Terbaik/ Excellent
	Tioxide Tengah (Pupuk Semangat, Kijal)	87	93	96	Terbaik/ Excellent
	Tioxide Selatan (KSB, T. Kalong)	94	86	95	Terbaik/ Excellent
Kelantan	Pulau Duyung	59	59	60	Sederhana/ Moderate
	Kuala Sungai Golok	59	79	65	Sederhana/ Moderate
	Kuala Sungai Kelantan	58	70	57	Sederhana/ Moderate
	Kuala Sungai Pengkalan Chepa	56	64	59	Sederhana/ Moderate
	Kuala Sungai Pengkalan Datu	59	59	69	Sederhana/ Moderate
	Kuala Sungai Kemasin	56	59	58	Sederhana/ Moderate
	Kuala Sungai Semerak	59	85	60	Sederhana/ Moderate
Sarawak	Kuala Sungai Semantan	65	90	70	Sederhana/ Moderate
	Kuala Sungai Sarawak	64	85	82	Baik/Good
	Kuala Sungai Bako	56	79	88	Baik/Good
	Kuala Sungai Santubong	76	90	90	Terbaik/ Excellent
	Kuala Batang Krian (Kabong)	83	71	87	Baik/Good
	Kuala Batang Rejang	66	85	82	Baik/Good
	Kuala Mukah	50	62	70	Sederhana/ Moderate
	Kuala Batang Kemena	53	58	55	Sederhana/ Moderate
	Kuala Tanjung Similajau	55	85	67	Sederhana/ Moderate
	Kuala Sungai Panipah	55	83	64	Sederhana/ Moderate
	Kuala Pantai Nyalau	58	71	84	Baik/Good

Status kualiti air marin di kawasan muara sungai, Malaysia, 2020-2022 (samb.)*Marine water quality status for estuary, Malaysia, 2020-2022 (cont'd)*

Negeri State	Kawasan Area	Nilai IKAM MWQI Value			Kategori Category (2022)
		2020	2021	2022	
Sarawak	Kuala Sungai Baram	57	76	55	Sederhana/ Moderate
	Kuala Sungai Miri	68	63	54	Sederhana/ Moderate
	Kuala Sungai Trusan	54	64	56	Sederhana/ Moderate
Sabah	Kuala Penyu	63	58	66	Sederhana/ Moderate
	Muara Sungai Inanam	57	59	58	Sederhana/ Moderate

Sumber: Jabatan Alam Sekitar
Source: Department of Environment

Status kualiti air marin di kawasan pulau, Malaysia, 2020-2022*Marine water quality status for island, Malaysia, 2020-2022*

Negeri State	Kawasan Area	Nilai IKAM MWQI Value			Kategori Category (2022)
		2020	2021	2022	
Kedah	Singa Besar	94	88	90	Terbaik/ Excellent
	Dayang Bunting	87	95	91	Terbaik/ Excellent
	Dayang Bunting 2	94	92	94	Terbaik/ Excellent
	Pulau Perak	89	92	96	Terbaik/ Excellent
	Payar	96	95	96	Terbaik/ Excellent
	Kaca	95	95	94	Terbaik/ Excellent
	Segantang	95	96	96	Terbaik/ Excellent
	Pantai Kuah	92	93	91	Terbaik/ Excellent
	Teluk Ewa	93	92	96	Terbaik/ Excellent
	Pantai Chenang	93	91	89	Baik/Good
	Tanjung Rhu	94	91	91	Terbaik/ Excellent
	Pasir	96	96	96	Terbaik/ Excellent
	Gasing	95	92	97	Terbaik/ Excellent
	Dangli	95	91	97	Terbaik/ Excellent
Pulau Pinang	Tanjung Tokong	71	68	83	Baik/Good
	Batu Maung	57	57	59	Sederhana/ Moderate
	Padang Kota	67	60	81	Baik/Good
	Teluk Bahang	85	83	87	Baik/Good
	Aman	72	72	92	Terbaik/ Excellent
	Jerejak	58	76	59	Sederhana/ Moderate
	Kendi	93	92	85	Baik/Good
	Rimau	90	92	93	Terbaik/ Excellent
	Gedong	84	82	91	Terbaik/ Excellent
Perak	Pantai Teluk Gedong	79	88	84	Baik/Good
	Pantai Puteri Dewi	95	95	94	Terbaik/ Excellent
	Pangkor Laut	93	96	95	Terbaik/ Excellent
	Sembilan	91	94	96	Terbaik/ Excellent
	Tukun Perak	93	96	96	Terbaik/ Excellent

Status kualiti air marin di kawasan pulau, Malaysia, 2020-2022 (samb.)*Marine water quality status for island, Malaysia, 2020-2022 (cont'd)*

Negeri State	Kawasan Area	Nilai IKAM MWQI Value			Kategori Category (2022)
		2020	2021	2022	
Selangor	Ketam	68	72	85	Baik/Good
	Angsa	59	89	83	Baik/Good
	Lumut	46	50	47	Tercemar/ Poor
Negeri Sembilan	Arang	92	94	92	Terbaik/ Excellent
Melaka	Upeh (Point A)	87	77	77	Sederhana/ Moderate
	Upeh (Point B)	80	87	85	Baik/Good
	Besar (Point A)	95	96	95	Terbaik/ Excellent
	Besar (Point B)	95	94	94	Terbaik/ Excellent
	Undan (Point A)	96	96	94	Terbaik/ Excellent
	Undan (Point B)	96	95	94	Terbaik/ Excellent
Johor	Setindan	94	97	97	Terbaik/ Excellent
	Babi Tengah	94	93	97	Terbaik/ Excellent
	Dayang	94	95	93	Terbaik/ Excellent
	Nanga Besar	78	78	94	Terbaik/ Excellent
	Sibu Tengah	86	96	96	Terbaik/ Excellent
	Pemanggil	95	94	95	Terbaik/ Excellent
	Kukup	62	70	89	Baik/Good
	Pisang	94	86	90	Terbaik/ Excellent
Pahang	Tioman (Teluk Salang)	89	96	96	Terbaik/ Excellent
	Tioman (Kg. Nipah)	95	96	97	Terbaik/ Excellent
	Tulai	95	97	97	Terbaik/ Excellent
	Labas	95	97	97	Terbaik/ Excellent
	Cebah	96	96	97	Terbaik/ Excellent
	Sepui	96	97	96	Terbaik/ Excellent
	Sembilang	94	97	97	Terbaik/ Excellent
	Seri Buat	93	97	97	Terbaik/ Excellent
	Tokong Bahara	69	95	97	Terbaik/ Excellent
Terengganu	Gemia	90	94	97	Terbaik/ Excellent

Status kualiti air marin di kawasan pulau, Malaysia, 2020-2022 (samb.)*Marine water quality status for island, Malaysia, 2020-2022 (cont'd)*

Negeri State	Kawasan Area	Nilai IKAM MWQI Value			Kategori Category (2022)
		2020	2021	2022	
Terengganu	Perhentian Besar (South)	95	97	96	Terbaik/ Excellent
	Perhentian Besar (West)	96	96	97	Terbaik/ Excellent
	Perhentian Kecil	96	97	97	Terbaik/ Excellent
	Redang (North)	96	96	97	Terbaik/ Excellent
	Redang (South)	95	96	97	Terbaik/ Excellent
	Lang Tengah	96	97	97	Terbaik/ Excellent
	Pinang	95	96	97	Terbaik/ Excellent
	Ekor Tebu	97	97	97	Terbaik/ Excellent
	Lima	96	97	97	Terbaik/ Excellent
	Kapas	94	96	97	Terbaik/ Excellent
Kelantan	Panjang	77	92	95	Terbaik/ Excellent
	Kundur	84	92	96	Terbaik/ Excellent
Sarawak	Satang	76	86	89	Baik/Good
	Talang-Talang Kecil	69	93	86	Baik/Good
	Talang-Talang Besar	79	93	80	Baik/Good
Sabah	Gaya	68	72	58	Sederhana/ Moderate
	Mabul	58	71	74	Sederhana/ Moderate
	Sipadan (N)	59	66	86	Baik/Good
	Sipadan (W)	58	61	62	Sederhana/ Moderate
	Sapi	65	81	58	Sederhana/ Moderate
	Manukan	75	86	57	Sederhana/ Moderate
	Tiga	72	58	61	Sederhana/ Moderate
	Kalampunian Besar	67	58	64	Sederhana/ Moderate
	Kapalai	58	77	69	Sederhana/ Moderate
	Molleangan Besar	61	61	85	Baik/Good
	Banggi (South)	65	58	81	Baik/Good
	Banggi (East)	75	60	85	Baik/Good
	Balambangan	69	71	85	Baik/Good

Status kualiti air marin di kawasan pulau, Malaysia, 2020-2022 (samb.)

Marine water quality status for island, Malaysia, 2020-2022 (cont'd)

Negeri State	Kawasan Area	Nilai IKAM MWQI Value			Kategori Category (2022)
		2020	2021	2022	
Sabah	Selingan	60	74	81	Baik/ <i>Good</i>
	Gulisan	65	70	72	Sederhana/ <i>Moderate</i>
	Bakungan Kecil	59	75	88	Baik/ <i>Good</i>
	Mantanani Besar	72	58	58	Sederhana/ <i>Moderate</i>
	Kuraman	67	58	58	Sederhana/ <i>Moderate</i>
	Rusukan Besar	59	58	64	Sederhana/ <i>Moderate</i>
	Rusukan Kecil	64	58	59	Sederhana/ <i>Moderate</i>
W.P. Labuan	Pohon Batu	67	58	58	Sederhana/ <i>Moderate</i>
	Water Front	59	58	63	Sederhana/ <i>Moderate</i>
	Lubuk Temiang	69	58	63	Sederhana/ <i>Moderate</i>
	Ranca-Ranca	64	58	59	Sederhana/ <i>Moderate</i>

Sumber: Jabatan Alam Sekitar

Source: Department of Environment

NOTA DAN SIMBOL

NOTES AND SYMBOLS

-	tiada/kosong/tiada kes <i>nil/blank/no cases</i>
..	tidak diperoleh <i>not available</i>
n.a.	tidak berkenaan <i>not applicable</i>
Def.	nilai defektif <i>defective value</i>
0.0	kurang daripada setengah unit terkecil yang ditunjukkan <i>less than half the smallest unit shown</i>
r	pindaan <i>revised</i>
e	anggaran <i>estimate</i>
p	awalan <i>preliminary</i>
i.e.	iaitu <i>that is</i>
PM	Habuk Halus <i>Particulate Matter</i>
CO	Karbon Monoksida <i>Carbon Monoxide</i>
NO ₂	Nitrogen Dioksida <i>Nitrogen Dioxide</i>
O ₃	Ozon <i>Ground Level Ozone</i>
SO ₂	Sulfur Dioksida <i>Sulphur Dioxide</i>
µg/m ³	mikrogram setiap meter padu <i>microgram per cubic metre</i>
ppm	bahagian setiap juta <i>parts per million</i>
ppb	bahagian setiap billion <i>parts per billion</i>
km ²	kilometer persegi <i>square kilometres</i>
mg/l	miligram setiap liter <i>milligram per litres</i>
JKPS MMscf	juta kaki padu standard <i>million standard cubic feet</i>

bil. <i>no.</i>	bilangan <i>number</i>
max.	maksimum <i>maximum</i>
min.	minimum
RM	Ringgit Malaysia
FDES	Rangka Kerja untuk Pembangunan Perangkaan Alam Sekitar <i>Framework for the Development of Environment Statistics</i>
KETSA	Kementerian Tenaga dan Sumber Asli <i>Ministry of Energy and Natural Resources</i>
ILP	Institut Latihan Perindustrian <i>Industrial Training Institute</i>
IPD	Ibu Pejabat Polis Daerah
LPG	Gas asli cecair <i>Liquefied Petroleum Gas</i>
MPOB	Lembaga Minyak Sawit Malaysia <i>Malaysian Palm Oil Board</i>
PERHILITAN <i>DWNP</i>	Jabatan Perlindungan Hidupan Liar dan Taman Negara <i>Department of Wildlife and National Parks</i>
UPE <i>EPU</i>	Unit Perancang Ekonomi <i>Economic Planning Unit</i>
UNEP	Program Alam Sekitar Bangsa-Bangsa Bersatu <i>United Nations Environment Programme</i>
USM	Universiti Sains Malaysia
W.P.	Wilayah Persekutuan

NOTA
NOTE

Pembundaran: Jumlah bagi komponen mungkin berbeza dengan jumlah besar dalam jadual penerbitan disebabkan oleh pembundaran angka
Rounding: The sum of components may not add up to the totals in the tables presented in this publication due to rounding

GLOSARI

GLOSSARY



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TERMA	PENERANGAN	TERMS	EXPLANATIONS
A			
Air payau	Air yang mengandung garam yang mana kepekatan garamnya kurang daripada kepekatan garam dalam air laut. Kepekatan jumlah garam yang terlarut biasanya dalam lingkungan 1,000-10,000 miligram per liter (mg/l).	Brackishwater	<i>Water containing salts at a concentration significantly lower than that of sea water. The concentration of total dissolved salts is usually in the range of 1,000-10,000 milligrams per litre (mg/l).</i>
Air tawar	Air bersih semula jadi yang mengandungi kurang kepekatan garam. Pada amnya ia sesuai untuk pengeluaran dan dirawat supaya menjadi air bersih yang sesuai untuk minum.	Freshwater	<i>Naturally occurring water having a low concentration of salts. It is generally accepted as suitable for abstraction and treatment to produce potable water.</i>
Aktiviti perlindungan alam sekitar	Tujuan utama adalah pencegahan, pengurangan dan penghapusan pencemaran dan lain-lain bentuk degradasi alam sekitar.	Environmental protection activities	<i>Primary purpose is the prevention, reduction and elimination of pollution and other forms of degradation of the environment.</i>
Ammoniakal Nitrogen (NH₃-N)	Komponen nitrogen yang digunakan sebagai penunjuk untuk menentukan pencemaran oleh kumbahan. Ia terhasil daripada aktiviti mikrobiologi dan biasanya wujud di dalam air permukaan dan air bawah tanah. Sumber utama bagi bahan pencemar NH ₃ -N adalah kumbahan domestik dan ladang ternakan.	Ammoniacal Nitrogen	<i>A component of nitrogen which is adopted as an indicator to determine pollution by sewage. It is formed from microbiology activity and usually exists inside surface water and groundwater. The main sources of NH₃-N were domestic sewage and livestock farming.</i>
Akuakultur	Akuakultur ialah proses pengeluaran yang melibatkan pengkulturan (termasuk tuaian) organisma akuatik (ikan, moluska, krustasia, tumbuhan) dengan menggunakan teknik yang direka bentuk untuk meningkatkan pengeluaran organisma tersebut melebihi kapasiti persekitaran semulajadinya.	Aquaculture	<i>Aquaculture refer to the production process involving the culturing or farming (including harvesting) of aquatic organisms (fish, molluscs, crustaceans, plant) using techniques designed to increase the production of the organism beyond the natural capacity of the environment.</i>
Atmosfera	Jisim udara yang mengelilingi bumi yang sebahagian besarnya terdiri daripada oksigen dan nitrogen.	Atmosphere	<i>Mass of air surrounding the earth, composed largely of oxygen and nitrogen.</i>
B			
Bahan pencemar udara	Bahan yang terkandung di dalam udara pada kepekatan yang cukup tinggi, boleh memudaratkan kesihatan manusia, haiwan, tanaman dan harta benda. Pencemar udara adalah termasuk bahan yang hampir kepada bentuk asal atau kandungan tiruan yang wujud terapung di udara. Ia boleh terdiri daripada pepejal, titisan cecair atau gas atau gabungan kesemuanya.	Air pollutants	<i>Substances in air that could, at high enough concentrations, harm human beings, animals, vegetation or material. Air pollutants may thus include forms of matter of almost any natural or artificial composition capable of being airborne. They may consist of solid particles, liquid droplets or gases or combination of these forms.</i>

TERMA	PENERANGAN	TERMS	EXPLANATIONS
Bahan pencemar	Bahan yang terdapat dalam kepekatan yang boleh membahayakan organisma (manusia, tumbuhan dan haiwan) atau melebihi standard kualiti alam sekitar. Istilah ini sering digunakan seiring dengan pencemar.	Pollutant	<i>Substance that is present in concentration that may harm organisms (humans, plants and animals) or exceed an environmental quality standard. The term is frequently used synonymously with contaminant.</i>
Banjir	Kuantiti air yang melimpah keluar dari tebing sungai, tasik atau sistem perparitan sedia ada yang disebabkan oleh curahan hujan yang lebat, air laut pasang dan halangan pada sistem saliran.	Flood	<i>A body of water, rising, swelling and overflowing land not usually thus covered. It is also, overflowing of the bank of a stream, lake or drainage system of water onto adjacent land as a result of storm tidal action and channel obstruction.</i>
Bencana	Bencana merupakan peristiwa luar jangka dan berlaku secara tiba-tiba yang boleh menyebabkan kerosakan, kemusnahan dan penderitaan manusia. Bencana sering digambarkan sebagai kesan daripada pendedahan kepada peristiwa melampau dan boleh dikelaskan sebagai semula jadi dan teknologi bergantung kepada punca.	Disasters	<i>Disasters are unforeseen and often sudden events that cause great damage, destruction and human suffering. A disaster is often described as a result of exposure to the extreme event and can be both natural and technological depending on their cause.</i>
Bencana teknologi	Mungkin disebabkan oleh niat, kecuai atau kesilapan manusia, atau daripada aplikasi teknologi yang rosak atau gagal. Tiga jenis bencana teknologi: kemalangan industri, kemalangan pengangkutan dan pelbagai kemalangan.	Technological disasters	<i>May arise as a result of human intent, negligence or error, or from faulty or failed technological applications. Three types of technological disasters: industrial accidents, transport accidents and miscellaneous accidents.</i>
Buangan terjadual	Merupakan buangan toksik dan berbahaya yang dihasilkan oleh industri, pertanian, bengkel, kontraktor buangan terjadual, aktiviti domestik dan buangan klinikal dari hospital. Kategori sisa adalah yang tersenarai dalam Jadual Pertama Peraturan Kualiti Alam Sekeliling (Buangan Terjadual) 2005.	Scheduled waste	<i>Defined as toxic waste and hazardous generated by industries, agriculture, workshop, scheduled waste contractors, domestic activities and clinical wastes from hospitals. The waste category listed in the First Schedule Environmental Quality Regulation (Scheduled Waste) 2005.</i>
D			
Rangka Kerja Driving Force-Pressure-State-Impact-Response (DPSIR)	Rangka analitikal yang berdasarkan hubungan di antara komponen D-P-S-I-R.	Driving Force-Pressure-State-Impact-Response (DPSIR) framework	<i>An analytical framework that is based on the casual relationship between its D-P-S-I-R components.</i>
Demam denggi	Penyakit jangkitan virus yang merebak melalui gigitan nyamuk Aedes aegypti yang telah dijangkiti.	Dengue fever	<i>A type of viral infection that spreads through infected Aedes aegypti mosquito bites</i>

TERMA	PENERANGAN	TERMS	EXPLANATIONS
Disentri	Disentri adalah cirit-birit akut yang mengandungi darah di dalam najis. Disentri kebanyakannya disebabkan oleh spesis <i>Shigella</i> (<i>disentri bacillary</i>) atau <i>Entamoeba histolytica</i> (<i>disentri amoebic</i>).	Dysentery	<i>Dysentery is acute diarrhoea with visible blood in the stool. Dysentery is most often caused by Shigella species (bacillary dysentery) or Entamoeba histolytica (amoebic dysentery).</i>
F			
Fauna	Semua kehidupan haiwan.	Fauna	<i>All animal life.</i>
Flora	Semua kehidupan tumbuhan.	Flora	<i>All plant life.</i>
H			
Habuk Halus (PM)	Partikel pepejal atau titisan cecair dalam udara atau pelepasan yang saiznya 0.01-100µm, contohnya habuk, asap, wasap, semburan dan kabut.	Particulate Matter (PM)	<i>Solid particles or liquid droplets in the air or emission 0.01-100µm size, eg: dust, smoke, fume, spray and mist.</i>
Habuk Halus (PM₁₀)	Partikel terampai berukuran kurang daripada diameter 10 mikron. PM ₁₀ boleh berbentuk pepejal atau cecair dan ia termasuk aerosol, debu, asap dan debunga. Partikel ini berpunca daripada stesen janakuasa, proses industri dan aktiviti pembakaran terbuka.	Particulate Matter (PM₁₀)	<i>Respirable particles of less than 10 micron in diameter. PM₁₀ can be in solid or liquid form and it includes aerosol, dust, smoke and pollen. These particles originate from power plants, industrial processes and open burning activities.</i>
Halaju angin	Suatu kuantiti vektor di mana ia mempunyai magnitud dan arah. Magnitud halaju angin dipanggil laju angin manakala arah angin merujuk dari mana angin bertiup.	Wind velocity	<i>A quantity of vectors in which it has magnitude and direction. The magnitude of the wind velocity is called the wind speed while the wind direction refers to where the wind blows.</i>
Hakisan	Proses penghausan permukaan fizikal. Biasanya dikaitkan dengan kehilangan tanah disebabkan air, salji atau angin. Hakisan berlaku secara semula jadi dan menyebabkan bertambah buruk akibat pembersihan tanah yang berkaitan dengan aktiviti manusia seperti pertanian, perumahan atau perindustrian.	Erosion	<i>Wearing away and transport of the soil by wind or running water, glaciers or waves. Erosion occurs naturally but is often intensified by human land-clearing activities related to farming, residential or industrial development.</i>
Hutan	Tanah merangkumi lebih daripada 0.5 hektar dengan ketinggian pokok lebih daripada 5 meter dan penutup kanopi lebih daripada 10 peratus, atau pokok yang dapat mencapai ambang in situ. Ia tidak termasuk tanah yang didominasi oleh penggunaan tanah pertanian atau bandar.	Forest	<i>Land spanning more than 0.5 hectares with tree higher than 5 metres and a canopy cover of more than 10 per cent, or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use.</i>

TERMA	PENERANGAN	TERMS	EXPLANATIONS
Hutan bandar	Menanam, memelihara dan mengurus pokok di kawasan awam seperti taman rekreasi, taman permainan dan kawasan lapang termasuk sepanjang lebuhraya.	Urban forest	<i>Planting, protecting and managing trees in public areas such as recreational parks, playgrounds and open spaces includes the route along the highway.</i>
Hutan Simpanan Kekal (HSK)	Mana-mana tanah (tanah berhutan dan tidak berhutan) yang diwartakan atau disifatkan sebagai HSK untuk tujuan perhutanan di bawah Seksyen 7, 8 dan 9 Akta Perhutanan Negara.	Permanent Reserved Forest (PRF)	<i>Any land (forested and non-forested land) that has been enacted or deemed PRF for forestry purposes under Sections 7, 8 and 9, the National Forestry Act.</i>
I			
Indeks Kualiti Air	Purata pemberat bagi kepekatan ambien bahan pencemar terpilih biasanya berkait kepada pengelasan kualiti air.	Water Quality Index	<i>Weighted average of selected ambient concentrations of pollutants usually linked to water quality classes.</i>
Indeks Pencemaran Udara (IPU)	Satu indikator yang dicipta berdasarkan kepada penilaian saintifik bagi memaklumkan dengan cara yang mudah difahami kehadiran pencemaran udara dan impaknya terhadap kesihatan manusia. Nilai IPU dikira berdasarkan kepekatan purata setiap pencemar udara iaitu SO ₂ , NO ₂ , CO, O ₃ dan PM ₁₀ . Pencemar udara yang dominan dengan kepekatan tertinggi diambilkira sebagai pencemar yang akan menentukan nilai IPU. Pada lazimnya, kepekatan (PM ₁₀) adalah yang tertinggi berbanding dengan pencemar yang lain dan ini menentukan bacaan IPU.	Air Pollutant Index (API)	<i>An indicator which is created based on scientific assessment to provide user friendly information about the presence of air pollution and its impact on human health. API value is calculated based on the average concentration of each air pollutant SO₂, NO₂, CO, O₃ and PM₁₀. Dominant of air pollutant with the highest concentrations of pollutants are accounted for as that will determine the value of the API. In general, concentrations of pm₁₀ are the highest compared to other concentrations and this determines the API readings.</i>
Indeks UV Suria (UVI)	Menerangkan tentang sinaran UV di permukaan Bumi. Nilai indeks tersebut mempunyai julat dari sifar ke atas – semakin tinggi nilai indeks, semakin besar potensi berlaku kerosakan pada kulit dan mata dan semakin cepat kesan tersebut boleh berlaku.	Solar UV Index (UVI)	<i>Describes the UV rays on the Earth's surface. The value of the index has a range from zero upwards - the higher the value of the index, the greater the potential for damage to the skin and eyes and the faster the effect can occur.</i>
Insinerator	Relau untuk membakar bahan buangan di bawah keadaan terkawal.	Incinerator	<i>Furnace for burning wastes under controlled conditions.</i>

TERMA	PENERANGAN	TERMS	EXPLANATIONS
K			
Kadar mortaliti bayi	Nisbah bilangan kematian bayi di bawah umur 1 tahun dalam sesuatu tahun kepada jumlah bilangan kelahiran hidup dalam tahun itu (bagi setiap seribu kelahiran hidup).	Infant mortality rate	<i>The ratio number of deaths of infants under 1 year of age in a given year to the total number of live births in that year (per thousand live births).</i>
Kawasan tadahan	Kawasan di mana hujan mengalir ke dalam sungai, tasik, atau takungan.	Catchment area	<i>The area from which rainfall flows into a river, lake, or reservoir.</i>
Kapasiti pengeluaran	Keupayaan pengeluaran air bagi loji yang beroperasi sepenuhnya dalam tahun berkenaan. Kapasiti pengeluaran berbeza setiap tahun tertakluk kepada reka bentuk loji.	Production capacity	<i>The ability to produce water by fully operated plants in the respective year. The production capacity varies every year according to the design of the plants.</i>
Karbon Monoksida	Tidak berwarna, tidak berbau dan gas beracun yang dihasilkan oleh pembakaran bahan api dan fossil yang tidak lengkap.	Carbon Monoxide	<i>Colourless odourless and poisonous gas produced by incomplete fossil fuel combustion.</i>
Kawasan bandar	Kawasan yang diwartakan serta kawasan tepubina yang bersempadan dengannya dan gabungan kedua-dua kawasan ini mempunyai penduduk seramai 10,000 atau lebih. Kawasan tepubina didefinisikan sebagai kawasan yang terletak bersebelahan kawasan yang diwartakan dan mempunyai sekurang-kurangnya 60 peratus (berumur 15 tahun dan lebih) yang terlibat dalam aktiviti bukan Pertanian.	Urban area	<i>Gazetted areas with their adjoining built-up areas which had a combined population of 10,000 or more. Built-up areas were defined as areas contiguous to a gazetted area and had at least 60 per cent of their population (aged 15 years and over) engaged in non-agricultural activities.</i>
Kawasan perlindungan/ simpanan	Kawasan tanah dan/atau laut khususnya bagi perlindungan dan pemuliharaan kepelbagaian biologi, yang berkaitan dengan sumber semula jadi dan diurus melalui perundangan ataupun cara lain yang berkesan. Definisi ini diadaptasi daripada <i>The International Union for Conservation of Nature</i> (IUCN).	Protected/ preserved area	<i>An area of land and/or sea especially dedicated to the protection and maintenance of biological diversity and of natural and associated cultural resources and managed through legal or other effective means. This definition is adopted by The International Union for Conservation of Nature (IUCN).</i>
Kemalangan jalan raya	Kemalangan atau kejadian yang mana kerosakan berlaku ke atas mana-mana orang, harta, kenderaan, struktur atau haiwan dan berlaku di mana-mana jalan awam termasuklah jambatan, terowong, hentian sebelah, jalan bertingkat, jejambat, plaza tol dan sebagainya.	Road traffic crash	<i>Accidents or occurrences whereby damage or injury is caused to any person, property, vehicle, structure or animal and occurs in any public road including bridge, tunnels, lay-bye, interchanges, overpasses, toll plazas and so on.</i>
Kelajuan angin permukaan	Merujuk kepada laju angin pada ketinggian piawai 10m di atas tanah.	Surface wind speed	<i>Refers to the wind speed at a standard altitude of 10m above ground.</i>

TERMA	PENERANGAN	TERMS	EXPLANATIONS
Kepadatan penduduk	Jumlah bilangan penduduk setiap unit per segi di kawasan muka bumi.	Population density	<i>Total number of inhabitants per square unit of surface area.</i>
Kepelbagaian biologi	Kepelbagaian biologi bermaksud variasi di antara organisma hidup daripada pelbagai sumber termasuk daratan, marin serta ekosistem akuatik lain; ia termasuklah kepelbagaian di dalam peringkat genetik, spesis dan ekosistem. Definisi ini diadaptasi daripada <i>United Nations Convention on Biological Diversity</i> .	Biological diversity	<i>Biological diversity means the variability among living organisms from various sources including terrestrial, marine and other aquatic ecosystems; this includes diversity at the genetic, species and ecosystem level. This definition is adopted by the United Nations Convention on Biological Diversity.</i>
Keperluan Oksigen Biokimia (BOD₅)	Ukuran jumlah oksigen terlarut yang diperlukan oleh organisma untuk mengurai bahan organik yang terdapat di dalam air. Biasanya bacaan diambil dalam tempoh 5 hari.	Biochemical Oxygen Demand (BOD₅)	<i>Dissolved oxygen required by organisms for the aerobic decomposition of organic matter present in water. This measurement is usually taken within 5 days.</i>
Keperluan Oksigen Kimia (COD)	Indeks pencemaran air yang digunakan sebagai ukuran kepekatan jisim oksigen yang diperlukan untuk mengurai bahan organik dan bukan organik.	Chemical Oxygen Demand (COD)	<i>Index of water pollution measuring the mass concentration of oxygen consumed by the chemical breakdown of organic and inorganic matter.</i>
Kolera	Penyakit usus pada umumnya disebabkan oleh pencemaran najis daripada air dan makanan.	Cholera	<i>Intestinal disease generally caused by faecal contamination of water and food.</i>
Kuasa hidro	Tenaga primer yang disimpulkan tersedia untuk pengeluaran elektrik dan ditunjukkan dari segi konvensional setara dengan bahan api fosil menggunakan kecekapan purata penukaran haba untuk tahun tersebut.	Hydropower	<i>Is the inferred primary energy available for electricity production and is shown in terms of conventional fossil fuel equivalent using the average thermal efficiency of conversion for the year.</i>
Kutipan biji benih	Biji benih pokok hutan yang dikutip secara terus dari atas pokok.	Seeds collections	<i>Seeds of forest trees collected directly from the tree.</i>
L			
Ladang hutan	Kawasan yang ditanam dengan pokok atau tumbuh-tumbuhan hutan, sama ada daripada spesis tempatan atau dagang, dengan kaedah tanaman secara terbuka yang luasnya tidak kurang daripada 50 ha. Ladang hutan boleh merangkumi kawasan yang terletak di dalam atau di luar HSK.	Forest plantation	<i>Area planted with trees or forest plants, whether from local or foreign species, the method of cultivation as wide open no less than 50 ha. Forest plantations can include areas that are located within or outside the PRF.</i>

TERMA	PENERANGAN	TERMS	EXPLANATIONS
Latar belakang	Stesen yang tidak terpengaruh dengan faktor-faktor pencemaran udara dari industri dan kenderaan bermotor. Stesen ini biasanya ditempatkan di kawasan yang jauh dari punca pencemar dan dijadikan bacaan rujukan bagi kategori stesen yang lain.	Background	<i>Stations that is not affected by air pollution factors from industry and motor vehicles. The station is usually located in a remote area of interest and is a reference point for other categories of stations.</i>
Logam berat	Logam bertoksik yang digunakan dalam proses industri, sebagai contoh, arsenik, kadmium, kromium, tembaga, plumbum, raksa, nikel dan zink. Ia boleh merosakkan kehidupan tumbuhan dan haiwan pada kepekatan yang rendah dan cenderung untuk berkumpul dalam rantai makanan.	Heavy metals	<i>Potentially toxic metals used in industrial processes, for example, arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc. They may damage plant and animal life at low concentrations and tend to accumulate in the food chain.</i>
N			
Nilai defektif	Nilai yang diragui atau nilai yang tidak diterima setelah menjalani proses semakan kualiti data.	Defective value	<i>A doubtful value or an unacceptable value after undergoing a data quality review process.</i>
Nilai pH	Ukuran kepada keasidan untuk nilai alkali dalam cecair. Nilai pH di antara lingkungan 0 ke 7 menunjukkan asid, nilai pH di antara lingkungan 7 ke 14 menunjukkan alkali, dan nilai pH 7 menandakan neutral.	pH Value	<i>Measure of the acidity or alkalinity of a liquid. A pH value in the range of 0 to 7 indicates acidity, a pH value in the range of 7 to 14 indicates alkalinity, and a pH value of 7 signifies neutrality.</i>
Nitrogen Dioksida (NO₂)	Nitrogen Dioksida terbentuk di persekitaran udara melalui pengoksidaan Nitrogen Monoksida (NO). Gas bertoksik berwarna merah keperangan ini mempunyai bau yang kuat dan tajam.	Nitrogen Dioxide (NO₂)	<i>Nitrogen Dioxide is formed in the ambient air through the oxidation of Nitrogen Monoxide (NO). This reddish brown toxic gas has a sharp and pungent odour.</i>
O			
Oksigen Terlarut (DO)	Jumlah gas oksigen (O ₂) yang berada dalam air, dikira mengikut kandungannya dalam isipadu air (miligram O ₂ seliter) atau jumlah peratusnya dalam air tepu.	Dissolved Oxygen (DO)	<i>Amount of gaseous oxygen (O₂) actually present in water expressed in terms either of its presence in the volume of water (milligrams of O₂ per litre) or of its share in saturated water (percentage).</i>

TERMA	PENERANGAN	TERMS	EXPLANATIONS
Ozon (O₃)	Gas yang mengeluarkan bau yang tidak menyenangkan, tidak berwarna dan bertoksik yang menyumbang kepada fotokimia asbut (campuran asap dan kabut). O ₃ terbentuk hasil daripada reaksi kimia antara Sebatian Organik Meruap (VOC) dan Nitrogen Oksida (NO _x). Pada lewat tengahari atau awal petang, lazimnya kepekatan ozon adalah tinggi dan mendominasi bacaan IPU di sesetengah kawasan. Di bawah pengaruh cahaya matahari, NO _x dan VOC yang dilepaskan dari ekzos kenderaan bermotor dan industri ia bertindakbalas bagi membentuk ozon di permukaan bumi.	Ground Level Ozone (O₃)	<i>A pungent, colourless and toxic gas that contributes to photochemical smog. O₃ is formed as a result of chemical reaction in the air between Volatile Organic Compounds (VOCs) and Nitrogen Oxide (NO_x). By the late afternoon or early evening, usually o₃ concentration is high and dominating API readings in some areas. Under the sunlight influence, and reaction between NO_x and VOC that released from motor vehicles exhaust and industrial which form the O₃ in the earth's surface. Under the influence of sunlight, nitrogen oxide (NO_x) and volatile organic compounds (VOCs) emitted from motor vehicle exhaust and industry reacts to form O₃ in the earth's surface.</i>
P			
Pelepasan	Pembuangan bahan pencemar ke atmosfera dari punca tetap seperti cerobong asap dan lain-lain, kawasan komersial atau perindustrian dan juga berpunca daripada punca bergerak seperti kenderaan bermotor, lokomotif dan pesawat.	Emission	<i>Discharge of pollutants into the atmosphere from stationary sources such as smokestacks, other vents, surface areas of commercial or industrial facilities and mobile sources, for example, motor vehicles, locomotives and aircraft.</i>
Pemantauan kualiti udara	Bacaan <i>standard</i> dan pemerhatian terhadap udara yang diambil secara berterusan atau kerap yang digunakan sebagai peringatan dan kawalan.	Air quality monitoring	<i>Continuous or frequent standardised measurement and observation of the air, often used for warning and control.</i>
Pencemaran marin	Pengenalan langsung atau tidak langsung oleh manusia atau tenaga ke dalam alam sekitar marin (termasuk muara), menghasilkan kemusnahan kepada sumber kehidupan, berbahaya kepada kesihatan hidupan, halangan kepada kegiatan marin termasuk memancing, merosakkan kualiti air laut dan mengurangkan keselesaan.	Marine pollution	<i>Direct or indirect introduction by humans of substances or energy into the marine environment (including estuaries), resulting in harm to living resources, hazards to human health, hindrances to marine activities including fishing, impairment of the quality of sea water and reduction of amenities.</i>
Pencemaran udara	Kandungan sesuatu gas, cecair atau zarah yang terampai di udara ambien yang boleh menjejaskan kehidupan atau memberi kesan negatif kepada manusia, tumbuh-tumbuhan dan haiwan.	Air pollution	<i>Content of a gas, liquid or particles suspended in the ambient air that could affect life or a negative impact on humans, plants and animals.</i>

TERMA	PENERANGAN	TERMS	EXPLANATIONS
Penempatan penduduk	Konsep penyatuan yang terdiri daripada (a) komponen fizikal tempat berteduh dan infrastruktur dan (b) perkhidmatan yang mana menyokong penyediaan elemen fizikal. Ini boleh dikatakan seperti perkhidmatan komuniti seperti pendidikan, kesihatan, kebudayaan, kebajikan, rekreasi dan pemakanan.	Human settlements	<i>Integrative concept that comprises (a) physical components of shelter and infrastructure and (b) services to which the physical elements provide support, that is to say, community services such as education, health, culture, welfare, recreation and nutrition.</i>
Pengawasan kualiti air	Bacaan <i>standard</i> dan pemerhatian terhadap air yang diambil secara berterusan atau kerap yang digunakan sebagai peringatan dan kawalan.	Water quality monitoring	<i>Continuous or frequent standardised measurement and observation of the water often used for warning and control.</i>
Penyejatan	Suatu proses yang melibatkan perubahan fasa cecair kepada gas apabila cecair terdedah kepada atmosfera. Dalam meteorologi ia diukur sebagai jumlah sejatan iaitu jumlah air yang disejat daripada tangki sejatan.	Evaporation	<i>A process that involves the phase change of a liquid to a gas when the liquid is exposed to the atmosphere. In meteorology, it is measured as the amount of evaporation i.e. the amount of water evaporated from the evaporation tank.</i>
Pepejal Terampai (SS)	Pepejal Terampai berpunca daripada hakisan tanah dan mendapan daripada pembangunan kawasan tanah tinggi dan pembukaan tanah untuk pembalakan dan perlombongan. Ia akan mengakibatkan peningkatan SS dan perubahan kepada kualiti air di dalam lembangan sungai.	Suspended Solids	<i>Suspended Solids (SS) is caused by soil erosion and sedimentation from the development in highlands and clearance of land for logging and mining. It is resulted in the increase of SS and affects water quality in the river basins.</i>
Perangkaan alam sekitar	Statistik yang menerangkan keadaan dan arah aliran alam sekitar, meliputi media alam sekitar semula jadi (udara/iklim, air, tanah), biota dalam media dan penempatan penduduk. Perangkaan alam sekitar mengukur aktiviti manusia dan kejadian semula jadi yang membawa kesan kepada alam sekitar, kesan daripada aktiviti-aktiviti dan kejadian ini, reaksi masyarakat kepada kesan alam sekitar dan kualiti kesediaan aset semula jadi. Definisi lengkap termasuk petunjuk alam sekitar, indeks dan perakaunan.	Environment statistics	<i>Statistics that describe the state and trends of the environment, covering the media of the natural environment (air/climate, water, land/soil), the biota within the media, and human settlements. Environment statistics are integrative in nature, measuring human activities and natural events that affect the environment, the impacts of these activities and events, social responses to the environmental impacts, and the quality and availability of natural assets. Broad definitions include environmental indicators, indices and accounting.</i>

TERMA	PENERANGAN	TERMS	EXPLANATIONS
Perubahan iklim	Istilah yang kerap digunakan merujuk kepada kepanasan sejagat berkaitan pelepasan gas rumah kaca hasil kegiatan manusia.	<i>Climate change</i>	<i>Term frequently used in reference to global warming due to greenhouse gas emissions from human activities.</i>
R			
Rangka Kerja Pembangunan Perangkaan Alam Sekitar	Konsep rangka kerja bagi membantu membangunkan, menyelaraskan dan menguruskan perangkaan alam sekitar dan perangkaan berkaitan dengan sosial ekonomi dan demografi. Ia dibangunkan oleh <i>United Nations Statistics Division</i> dalam tahun 1984, dan ianya berdasarkan kepada prinsip tekanan-tindak balas impak alam sekitar.	<i>Framework for the Development of Environment Statistics (FDES)</i>	<i>Conceptual framework that assists in development, coordination and organisation of environment statistics and related socio-economic and demographic statistics. It was developed by the United Nations Statistics Division in 1984, and is based on stress-response principles of environmental impacts.</i>
S			
Sinaran global	Jumlah sinaran radiasi elektromagnet yang dipancarkan oleh matahari ke permukaan bumi.	<i>Global radiation</i>	<i>The amount of electromagnetic radiation emitted by the sun to the earth's surface.</i>
Sisa	Aliran bahan pepejal, cecair dan gas, serta tenaga, yang dibuang, dilepaskan atau dikeluarkan oleh pertubuhan dan isi rumah melalui proses pengeluaran, penggunaan atau pengumpulan.	<i>Residuals</i>	<i>Flows of solid, liquid and gaseous materials, and energy, discarded, discharged or emitted by establishments and households through production, consumption or accumulation processes.</i>
Sistem bekas lombong	Sistem untuk menternak ikan di mana-mana tanah yang pernah (tetapi tidak lagi) diberi atau dikeluarkan pajakan lombong atau sijil lombong di bawah mana-mana undang-undang bertulis mengenai perlombongan.	<i>Ex-mining culture system</i>	<i>System of fish culture on any land in respect of which a mining lease or certificate were once but no longer granted or issued under any written law relating to mining.</i>
Sistem kandang	Sistem yang merupakan suatu kepungan yang dibuat daripada bahan pengadang yang dilekatkan pada tiang yang ditanam ke dasar laut.	<i>Pen culture system</i>	<i>System of fish culture in an enclosure made of any screening material attached to poles staked to the seabed.</i>
Sistem kolam	Sistem ternakan ikan di dalam kolam.	<i>Culture system</i>	<i>System of fish culture in ponds.</i>
Sistem sangkar	Sistem untuk menternak ikan di dalam suatu kepungan yang dibuat daripada apa-apa bahan saringan yang diikat pada struktur yang dilabuhkan pada dasar perairan sungai atau mana-mana tempat di darat.	<i>Cage culture system</i>	<i>System of fish culture in an enclosure on whatever shape or size made of any screening material and attached to floating structures which are anchored to the sea-bed.</i>

TERMA	PENERANGAN	TERMS	EXPLANATIONS
Sistem tangki	Sistem ternakan ikan di dalam tangki di atas tanah.	Tank culture system	<i>System of fish culture in tanks on land.</i>
Standard kualiti udara	Tahap pencemaran udara ditetapkan oleh peraturan-peraturan dimana tidak boleh melebihi bagi sesuatu tempoh masa di kawasan yang ditetapkan.	Air quality standards	<i>Levels of air pollutants prescribed by regulations that may not be exceeded during a specified time in a defined area.</i>
Subbandar	Stesen pengawasan kualiti udara yang terletak di kawasan pinggir bandar.	Suburban	<i>Air quality monitoring stations located in the suburban areas.</i>
Sulfur Dioksida (SO₂)	Berat, tajam, gas tidak berwarna terbentuk terutamanya oleh pembakaran bahan api fosil. Ia adalah berbahaya kepada manusia dan tumbuh-tumbuhan dan menyumbang kepada keasidan dalam hujan.	Sulphur Dioxide (SO₂)	<i>Heavy, pungent, colourless gas formed primarily by the combustion of fossil fuels. It is harmful to human beings and vegetation and contributes to the acidity in precipitation.</i>
T			
Taman Laut	Kawasan perairan laut yang dizonkan sejauh dua batu nautika dari tikas air surut terendah, kecuali Pulau Kapas di Terengganu, Pulau Kuraman, Pulau Rusukan Besar dan Pulau Rusukan Kecil di W.P. Labuan yang dizonkan sejauh satu batu nautika dari tikas air surut terendah. Taman Laut ditubuhkan untuk melindungi dan memulihara pelbagai habitat dan hidupan marin akuatik.	Marine Park	<i>Sea zoned area for a distance of two nautical miles from the lowest sea level, except in Kapas Island in Terengganu, Kuraman Island, Rusukan Besar Island and Rusukan Kecil Island in W.P. Labuan. These areas are zoned for a distance of one nautical mile from the lowest sea level. Marine Park is established to protect and conserve various habitat and aquatic marine life.</i>
Tanah Bencah-Ramsar	Kawasan yang berpayau, fen, tanah gambut atau berair samada semula jadi atau buatan manusia, kekal atau sementara, mengandungi air yang tidak mengalir, mengalir, air bersih, air tawar atau masin termasuk kawasan perairan laut, di mana dalamannya tidak melebihi enam meter.	Wetland-Ramsar	<i>Areas of marshes, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static, flowing, fresh, brackish or salt, including areas of marine water, the depth of which at low tide does not exceed six metres.</i>
Tanah bencah	Kawasan dari lapisan tanah rendah yang mana aras air bumi yang berada atau berhampiran dengan permukaan tanah pada kebanyakan masa. Tanah bencah termasuk semua tanah berpayau, tanah berlumpur, fen dan muara.	Wetland	<i>Area of low-lying land where the water table is at or near the surface most of the time. Wetlands include swamps, bogs, fens, marshes and estuaries.</i>

TERMA	PENERANGAN	TERMS	EXPLANATIONS
Tanah berhutan	Tanah yang merangkumi lebih daripada 0.5 hektar dengan pokok-pokok yang lebih tinggi daripada 5 meter dan litupan kanopi melebihi 10%, atau pokok yang mampu untuk mencapai tahap in-situ. Ia tidak termasuk tanah di bawah penggunaan tanah pertanian atau bandar (dirian pokok di kawasan pertanian, taman dan sebagainya). (FAO 1998; FRA 2000). Keluasan kawasan berhutan ini dibahagikan kepada Hutan Simpanan Kekal (HSK), Hutan Tanah Kerajaan (HTK), Hutan Hidupan Liar di luar kawasan HSK, lain-lain Rizab Berhutan dan Tanah Bermilik.	Forested land	<i>A land area of more than 0.5 ha. The trees should be able to reach a minimum height of 5 metres with a tree canopy cover of more than 10 per cent. It does not include land under agricultural or urban land use (stand of trees in agricultural areas, parks, etc.). Forested land is divided into permanent forest reserve (PRF), forest land government (FLG), forest wildlife outside the PRF, others forested reserve and alienated land.</i>
Tanaman	Tanaman merujuk kepada tumbuhan atau hasil pertanian yang ditanam untuk makanan atau keperluan ekonomi lain, seperti pakaian atau makanan ternakan.	Crops	<i>Crops refer to plants or agricultural produce grown for food or other economic purposes, such as clothes or livestock fodder.</i>
Tanaman buluh	Buluh digunakan secara meluas dalam industri pembuatan perabot, kraftangan, bekas barangan, tikar, pulpa, kertas, bahan bakar, pembinaan dan peralatan rumah.	Bamboo plantation	<i>Bamboo is a widely used in the furniture manufacturing industry, handicrafts, container products, matting, pulp, paper, fuel, and construction as well as home appliances.</i>
Tanaman mengaya	Merupakan suatu rawatan pemulihan hutan ke atas kawasan hutan miskin dan kawasan lapang yang dilaksanakan ke atas kawasan di dalam HSK yang telah diusahasil bagi membantu meningkatkan isi kandungan hutan tersebut supaya mencapai tahap yang dikehendaki.	Enrichment planting	<i>Forest restoration treatments on poor forest areas and open spaces that are performed on the areas in PRF which has been harvested to help improve the content of the forest to reach the desired level.</i>
Tanaman rotan	Salah satu hasil hutan bukan kayu utama. Bertujuan untuk meningkatkan stok tumbuhan dalam kawasan HSK yang sesuai bagi memastikan pengeluaran sumber ini secara berkekalan untuk menampung keperluan industri perabot rotan tempatan.	Rattan plantation	<i>One of the main non-timber forest products. The plantation is to increase the stock of this plant in the PRF appropriate to ensure sustainable production of these resources to meet the needs of the local rattan furniture industry.</i>
Tanaman tumbuhan ubatan	Spesis tumbuhan yang mempunyai nilai perubatan dan ditanam secara ladang.	Planting of medicinal plants	<i>Species of plants that have medicinal value and cultivated fields.</i>

TERMA	PENERANGAN	TERMS	EXPLANATIONS
Tapak pelupusan	Pemindahan terakhir bahan sisa di dalam atau di atas tanah yang dikawal atau tidak dikawal mengikut cara kebersihan yang berbeza, perlindungan alam sekitar dan keperluan keselamatan yang lain.	Landfill	<i>Final replacement of waste in or on the land in a controlled or uncontrolled way according to different sanitary, environmental protection and other safety requirements.</i>
Tapak pelupusan sanitari	Kaedah untuk melupuskan sisa pepejal di atas tanah tanpa menimbulkan gangguan atau bahaya kepada kesihatan awam dan alam sekitar. Berdasarkan prinsip kejuruteraan, sisa pepejal dihadkan kepada kawasan kecil, dikurangkan kepada jumlah yang lebih kecil dan ditutup dengan lapisan tanah pada penghujung waktu operasi setiap hari, atau pada jangka masa yang lebih kerap mengikut keperluan.	Sanitary landfill	<i>A method of disposing of solid wastes on land without creating nuisances or hazards to public health or the environment. Using the principles of engineering, the solid waste is confined to the smallest practical area, reduced to the smallest practical volume and covered with a layer of earth at the conclusion of each day's operation (daily cover), or at more frequent intervals as may be necessary.</i>
Tapak semaian	Menghasilkan anak benih dan anak pokok untuk digunakan bagi projek-projek penghutan semula, penyelidikan, perhutanan bandar dan aktiviti landskap.	Nursery	<i>Produce seedlings and saplings to be used for reforestation projects, research, urban forestry and landscape activities.</i>
Tekanan aras laut	Tekanan udara yang diukur berdasarkan jarak ketinggian dari paras purata aras laut (mean sea level) mengikut <i>ICAO Standard Atmosphere</i> .	Sea level pressure	<i>The air pressure measured based on the altitude distance from the mean sea level according to the ICAO Standard Atmosphere.</i>
Tidak diperoleh	Tiada pencerapan dilaksanakan.	Not available	<i>No observations are performed.</i>
Topografi	Bentuk fizikal kawasan permukaan, termasuk muka bumi atau ketinggian relatif dan kedudukan bentuk muka bumi buatan manusia dan semula jadi.	Topography	<i>Physical feature of a surface area, including its relief or relative elevations, and the position of human-made and natural features.</i>
V			
Viral Hepatitis A	Penyakit akut biasanya termasuk demam, dedar, keletihan melampau, anoreksia, loya, jaundis akut dan kuadran atas kanan abdomen dengan pertambahan lebih alanine aminotransferase melebihi 2.5 kali kadar biasa.	Viral Hepatitis A	<i>Acute illness typically including fever, malaise, extreme fatigue, anorexia, nausea, acute jaundice and right upper quadrant of abdomen tenderness with raised alanine aminotransferase more than 2.5 times normal rate.</i>

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**PERTANYAAN BERHUBUNG DENGAN PENERBITAN INI BOLEH JUGA DIBUAT DI
PEJABAT PERANGKAAN NEGERI SEPERTI BERIKUT:**

Pengarah,
Jabatan Perangkaan Malaysia Negeri Johor,
Tingkat 14, Menara Tabung Haji,
Jalan Air Molek,
80000 Johor Bahru, Johor.
Tel. : 07-225 3700
Faks : 07-224 9972
E-mel : jpjohor@dosm.gov.my

Pengarah,
Jabatan Perangkaan Malaysia Negeri Kedah,
Aras 1, Zon C, Wisma Persekutuan,
Pusat Pentadbiran Kerajaan Persekutuan,
Bandar Muadzam Shah,
06550 Anak Bukit, Kedah.
Tel. : 04-700 1240
Faks : 04-733 8412
E-mel : jpkedah@dosm.gov.my

Pengarah,
Jabatan Perangkaan Malaysia Negeri Kelantan,
Tingkat 8, Bangunan Persekutuan,
Jalan Bayam,
15514 Kota Bharu, Kelantan.
Tel. : 09-741 9449
Faks : 09-748 2142
E-mel : jpkelantan@dosm.gov.my

Pengarah,
Jabatan Perangkaan Malaysia Negeri Melaka,
Aras 7 & 8, Wisma Persekutuan,
Jalan MITC, Hang Tuah Jaya,
75450, Ayer Keroh,
Melaka.
Tel. : 06-252 2725
Faks : 06-252 2711
E-mel : jpmelaka@dosm.gov.my

Pengarah,
Jabatan Perangkaan Malaysia Negeri Sembilan,
Tingkat 12, Wisma Persekutuan,
Jalan Dato' Abdul Kadir,
70000 Seremban,
Negeri Sembilan.
Tel. : 06-765 5000
Faks : 06-765 5002
E-mel : jpnsembilan@dosm.gov.my

Pengarah,
Jabatan Perangkaan Malaysia Negeri Pahang,
Tingkat 7, Bangunan Persekutuan,
Jalan Gambut,
25000 Kuantan, Pahang.
Tel. : 09-516 3931/7
Faks : 09-514 4636
E-mel : jppahang@dosm.gov.my

Pengarah,
Jabatan Perangkaan Malaysia Negeri Pulau Pinang,
Tingkat 6, Bangunan Persekutuan,
10400 Jalan Anson,
Pulau Pinang.
Tel. : 04-226 6244
Faks : 04-229 9499
E-mel : jppulaupinang@dosm.gov.my

Pengarah,
Jabatan Perangkaan Malaysia Negeri Perak,
Tingkat 3, Blok A, Bangunan Persekutuan Ipoh,
Jalan Dato' Seri Ahmad Said (Greentown),
30450 Ipoh, Perak.
Tel. : 05-243 6107
Fax : 05-255 1073
E-mel : jpperak@dosm.gov.my

Pengarah,
Jabatan Perangkaan Malaysia Negeri Perlis,
Tingkat 2, 26B, KPARC,
01000 Kangar, Perlis.
Tel. : 04-976 1793
Faks : 04-977 1223
E-mel : jpperlis@dosm.gov.my

Pengarah,
Jabatan Perangkaan Malaysia Negeri Selangor,
Tingkat 9, Bangunan Darul Ehsan,
Jalan Indah, Seksyen 14,
40000 Shah Alam, Selangor.
Tel. : 03-5515 0200
Faks : 03-5518 0408
E-mel : jpselangor@dosm.gov.my

Pengarah,
Jabatan Perangkaan Malaysia Negeri Terengganu,
Tingkat 9, Wisma Persekutuan,
Jalan Sultan Ismail,
20200 Kuala Terengganu, Terengganu.
Tel. : 09-622 3062
Faks : 09-622 9659
E-mel : admin_jptrg@dosm.gov.my

Pengarah,
Jabatan Perangkaan Malaysia Negeri Sabah,
Tingkat 1-3, Blok C,
Kompleks Pentadbiran Kerajaan Persekutuan Sabah,
Jalan UMS, Beg Berkunci 2046,
88999 Kota Kinabalu, Sabah.
Tel. : 088-484 602
Faks : 088-484 659
E-mel : jpsabah@dosm.gov.my

Pengarah,
Jabatan Perangkaan Malaysia Negeri Sarawak,
Tingkat 7 & 8, Bangunan Tun Datuk Patinggi
Tuanku Haji Bujang, Jalan Simpang 3,
93514 Kuching, Sarawak.
Tel. : 082-240 287
Faks : 082-242 609
E-mel : sarawak@dosm.gov.my

Pengarah,
Jabatan Perangkaan Malaysia
Wilayah Persekutuan,
Tingkat 14 & 15, Wisma FGV,
Jalan Raja Laut,
50350 Kuala Lumpur.
Tel. : 03-2267 2400
Faks : 03-2691 0639
E-mel : dosmwp@dosm.gov.my

ENQUIRIES ABOUT THIS PUBLICATION CAN ALSO BE MADE AT THE FOLLOWING STATE STATISTICS OFFICES:

Director,
Department of Statistics, Malaysia Johor,
14th Floor, Menara Tabung Haji,
Jalan Air Molek,
80000 Johor Bahru, Johor.
Tel. : 07-225 3700
Fax : 07-224 9972
Email : jpjohor@dosm.gov.my

Director,
Department of Statistics, Malaysia Kedah,
1st Floor, Zon C, Wisma Persekutuan,
Pusat Pentadbiran Kerajaan Persekutuan,
Bandar Muadzam Shah,
06550 Anak Bukit, Kedah.
Tel. : 04-700 1240
Fax : 04-733 8412
Email : jpkedah@dosm.gov.my

Director,
Department of Statistics, Malaysia Kelantan,
8th Floor, Bangunan Persekutuan,
Jalan Bayam,
15514 Kota Bharu, Kelantan.
Tel. : 09-741 9449
Fax : 09-748 2142
Email : jpkelantan@dosm.gov.my

Director,
Department of Statistics, Malaysia Melaka,
7th & 8th Floor, Wisma Persekutuan,
Jalan MITC, Hang Tuah Jaya,
75450, Ayer Keroh,
Melaka.
Tel. : 06-252 2725
Fax : 06-252 2711
Email : jpmelaka@dosm.gov.my

Director,
Department of Statistics, Malaysia Negeri Sembilan,
12th Floor, Wisma Persekutuan,
Jalan Dato' Abdul Kadir,
70000 Seremban,
Negeri Sembilan.
Tel. : 06-765 5000
Fax : 06-765 5002
Email : jpnsembilan@dosm.gov.my

Director,
Department of Statistics, Malaysia Pahang,
7th Floor, Bangunan Persekutuan,
Jalan Gambut,
25000 Kuantan, Pahang.
Tel. : 09-516 3931/7
Fax : 09-514 4636
Email : jppahang@dosm.gov.my

Director,
Department of Statistics, Malaysia, Pulau Pinang,
6th Floor, Bangunan Persekutuan,
10400 Jalan Anson,
Pulau Pinang.
Tel. : 04-226 6244
Fax : 04-229 9499
Email : jppulaupinang@dosm.gov.my

Director,
Department of Statistics, Malaysia Perak,
3rd Floor, Block A, Bangunan Persekutuan Ipoh,
Jalan Dato' Seri Ahmad Said (Greentown),
30450 Ipoh, Perak.
Tel. : 05-243 6107
Fax : 05-255 1073
Email : jpperak@dosm.gov.my

Director,
Department of Statistics, Malaysia Perlis,
2nd Floor, 26B, KPARC,
01000 Kangar, Perlis.
Tel. : 04-976 1793
Faks : 04-977 1223
Email : jpperlis@dosm.gov.my

Director,
Department of Statistics, Malaysia Selangor,
9th Floor, Bangunan Darul Ehsan,
Jalan Indah, Seksyen 14,
40000 Shah Alam, Selangor.
Tel. : 03-5515 0200
Fax : 03-5518 0408
Email : jpselangor@dosm.gov.my

Director,
Department of Statistics, Malaysia Terengganu,
9th Floor, Wisma Persekutuan,
Jalan Sultan Ismail,
20200 Kuala Terengganu, Terengganu.
Tel. : 09-622 3062
Fax : 09-622 9659
E-mel : admin_jptrg@dosm.gov.my

Director,
Department of Statistics, Malaysia Sabah,
Level 1-3, Block C,
Kompleks Pentadbiran Kerajaan Persekutuan Sabah,
Jalan UMS, Beg Berkunci 2046,
88999 Kota Kinabalu, Sabah.
Tel. : 088-484 602
Fax : 088-484 659
Email : jpsabah@dosm.gov.my

Director,
Department of Statistics, Malaysia Sarawak,
7th & 8th Floor, Bangunan Tun Datuk Patinggi
Tuanku Haji Bujang, Jalan Simpang 3,
93514 Kuching, Sarawak.
Tel. : 082-240 287
Fax : 082-242 609
Email : sarawak@dosm.gov.my

Director,
Department of Statistics, Malaysia
Federal Territories,
14th & 15th Floor, Wisma FGV,
Jalan Raja Laut,
50350 Kuala Lumpur.
Tel. : 03-2267 2400
Fax : 03-2691 0639
Email : dosmwp@dosm.gov.my

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