



JABATAN PERDANA MENTERI  
JABATAN PERANGKAAN MALAYSIA

**LAPORAN SURVEI  
PERBELANJAAN PERLINDUNGAN  
ALAM SEKITAR**

***REPORT ON THE SURVEY OF  
ENVIRONMENTAL PROTECTION EXPENDITURE***

**2021**

JABATAN PERANGKAAN MALAYSIA  
DEPARTMENT OF STATISTICS MALAYSIA





JABATAN PERDANA MENTERI  
JABATAN PERANGKAAN MALAYSIA

# LAPORAN SURVEI PERBELANJAAN PERLINDUNGAN ALAM SEKITAR

## *REPORT ON THE SURVEY OF ENVIRONMENTAL PROTECTION EXPENDITURE*

# 2021

### **Pemakluman**

Jabatan Perangkaan Malaysia (DOSM) sedang menjalankan Survei Pendapatan, Perbelanjaan Isi Rumah dan Kemudahan Asas (HIES/BA) 2022 bermula dari 1 Januari 2022 sehingga 31 Disember 2022 dan Survei Ekonomi Tahunan (AES) 2022 bermula dari 15 April 2022 sehingga 30 September 2022. DOSM amat menghargai kerjasama daripada responden yang terpilih untuk memberikan maklumat kepada DOSM serta menjayakan survei ini. Sila layari [www.dosm.gov.my](http://www.dosm.gov.my) untuk maklumat lanjut.

Penerbitan statistik ekonomi dan sosial iaitu PocketStats yang mengandungi statistik suku tahunan dan tahunan boleh diperoleh dari portal DOSM atau melalui pautan [https://bit.ly/PocketStatsS1\\_2022](https://bit.ly/PocketStatsS1_2022).

Dimaklumkan bahawa Kerajaan Malaysia telah mengisytiharkan Hari Statistik Negara (MyStats Day) pada 20 Oktober setiap tahun. Tema sambutan MyStats Day adalah “*Connecting the World with Data We Can Trust*”.

### **Announcement**

*The Department of Statistics Malaysia (DOSM) is conducting the Household Income, Expenditure and Basic Amenities Survey (HIES/BA) 2022 from 1<sup>st</sup> January 2022 until 31<sup>st</sup> December 2022 and the Annual Economic Survey (AES) 2022 from 15<sup>th</sup> April 2022 until 30<sup>th</sup> September 2022. DOSM greatly appreciates the cooperation given by selected respondents by sharing their information with DOSM and making the survey a success. Please visit [www.dosm.gov.my](http://www.dosm.gov.my) for more information.*

*Economic and social statistics publication namely PocketStats which contain quarterly and annual statistics can be obtained from the DOSM portal or via the link [https://bit.ly/PocketStatsQ1\\_2022](https://bit.ly/PocketStatsQ1_2022). Please be informed that the Government of Malaysia has declared National Statistics Day (MyStats Day) on October 20 each year. MyStats Day theme is “*Connecting the World with Data We Can Trust*”.*

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**DEPARTMENT OF STATISTICS MALAYSIA**

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Laporan Survei Perbelanjaan Perlindungan Alam Sekitar 2021 membentangkan statistik perbelanjaan perlindungan alam sekitar bagi tahun rujukan 2020. Sektor yang diliputi adalah Pertanian, perhutanan & perikanan; Perlombongan & pengkuarian; Pembuatan; Pembinaan dan Perkhidmatan. Konsep & definisi yang digunakan dalam survei ini adalah berdasarkan *Environmental Expenditure Statistics: Industry Data Collection Handbook 2005* oleh Eurostats; *Classification of Environmental Protection Activities and Expenditure (CEPA) 2000* oleh Statistical Office of the European Communities dan *Glossary of Statistical Terms* oleh Organisation for Economic Co-operation and Development (OECD).

Statistik yang dilaporkan dalam penerbitan ini meliputi perbelanjaan modal dan operasi bagi pengurusan pencemaran, pengurusan sisa, penilaian dan caj alam sekitar, perlindungan hidupan liar & habitat dan perbelanjaan lain untuk perlindungan alam sekitar. Statistik ini juga boleh digunakan oleh agensi kerajaan, ahli ekonomi, ahli akademik, pihak swasta serta individu bagi tujuan membuat perancangan dan penggubalan dasar, analisis ekonomi dan membantu dalam merancang pembangunan perniagaan.

Penerbitan ini merangkumi tiga bahagian utama. Bahagian pertama memaparkan penemuan utama & ringkasan penemuan perbelanjaan perlindungan alam sekitar. Jadual perangkaan terperinci dipaparkan di bahagian kedua, manakala bahagian ketiga pula menerangkan aspek teknikal antaranya skop & liputan, konsep & definisi serta pemboleh ubah utama yang digunakan bagi memudahkan pengguna memahami statistik yang diterbitkan.

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

**DATO' SRI DR. MOHD UZIR MAHIDIN**

Ketua Perangkawan Malaysia

**Jun 2022**

*The Report on the Survey of Environmental Protection Expenditure 2021 presents statistics on the environmental protection expenditure for the reference year 2020. Sectors covered comprised of Agriculture, forestry & fishing; Mining & quarrying; Manufacturing; Construction and Services. Concepts & definitions used in this survey is based on Environmental Expenditure Statistics: Industry Data Collection Handbook 2005 by Eurostats; Classification of Environmental Protection Activities and Expenditure (CEPA) 2000 by Statistical Office of the European Communities and Glossary of Statistical Terms by Organisation for Economic Co-operation and Development (OECD).*

*Statistics reported in this publication includes capital and operating expenditure for pollution management, waste management, environmental assessment and charges, protection of wildlife & habitat and other environmental protection expenditure. These statistics can be used by government agencies, economists, academicians, private sectors and individuals for planning and formulating policies, economic analysis and assisting in business development planning.*

*This publication consists of three parts. The first part presents the main findings & summary of findings on environmental protection expenditure. The detail statistical tables are showed in the second part, meanwhile the third part describes technical aspects such as scope and coverage, concepts & definitions as well as the key variables used to assist users to understand the published statistics.*

*The department gratefully acknowledges the co-operation rendered by the respondents as well as all parties who have contributed in making this survey a success. Every feedback and suggestion towards improving future reports is highly appreciated.*

**DATO' SRI DR. MOHD UZIR MAHIDIN**

*Chief Statistician Malaysia*

**June 2022**

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# Penemuan Utama & Ringkasan Penemuan

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*Main Findings &  
Summary of Findings*

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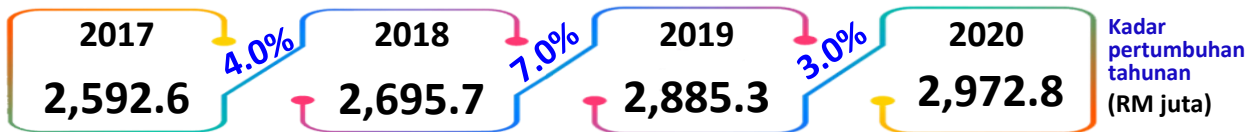


# PERBELANJAAN PERLINDUNGAN ALAM SEKITAR

## PENEMUAN UTAMA

1

Data siri masa



Kadar pertumbuhan tahunan (RM juta)

2

Statistik mengikut sektor

Pertanian, perhutanan & perikanan



2020 : 34.9 ▲ 6.9%  
2019 : 32.7

Perlombongan & pengkuarian



2020 : 100.4 ▲ 4.3%  
2019 : 96.3

Pembuatan



2020 : 2,382.4 ▲ 9.2%  
2019 : 2,181.3

Pembinaan



2020 : 88.4 ▼ 45.2%  
2019 : 161.2

Perkhidmatan



2020 : 366.7 ▼ 11.4%  
2019 : 413.8

3

Statistik mengikut jenis perbelanjaan

Pengurusan pencemaran

▲ 4.1%  
2020 : 2,103.7  
2019 : 2,021.2



Pengurusan sisa

▲ 2.0%  
2020 : 766.8  
2019 : 751.7



Penilaian dan caj alam sekitar

▲ 3.5%  
2020 : 67.2  
2019 : 64.9



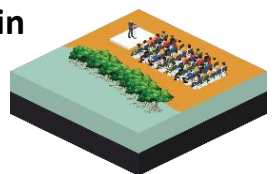
Perlindungan hidupan liar & habitat

▲ 181.7%  
2020 : 18.0  
2019 : 6.4



Perbelanjaan lain

▼ 58.1%  
2020 : 17.2  
2019 : 41.0



▲ Kadar pertumbuhan tahunan  
▼ Kadar pertumbuhan tahunan

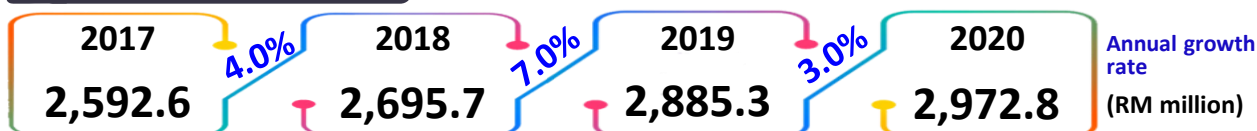


# ENVIRONMENTAL PROTECTION EXPENDITURE

## MAIN FINDINGS

1

### Time series data



2

### Statistics by sector

#### Agriculture, forestry & fishing



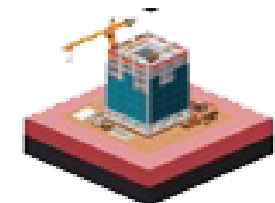
2020 : 34.9  
2019 : 32.7 ▲ 6.9%



Mining & quarrying  
2020 : 100.4  
2019 : 96.3 ▲ 4.3%



Manufacturing  
2020 : 2,382.4  
2019 : 2,181.3 ▲ 9.2%



Construction  
2020 : 88.4  
2019 : 161.2 ▼ 45.2%



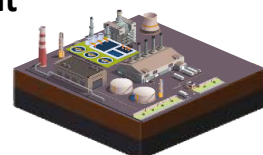
Services  
2020 : 366.7  
2019 : 413.8 ▼ 11.4%

3

### Statistics by type of expenditure

#### Pollution management

▲ 4.1%  
2020 : 2,103.7  
2019 : 2,021.2



#### Waste management

▲ 2.0%  
2020 : 766.8  
2019 : 751.7



#### Environmental assessment and charges

▲ 3.5%  
2020 : 67.2  
2019 : 64.9



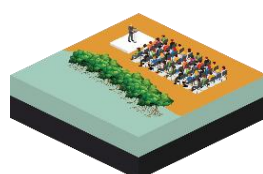
#### Protection of wildlife & habitat

▲ 181.7%  
2020 : 18.0  
2019 : 6.4



#### Other expenditure

▼ 58.1%  
2020 : 17.2  
2019 : 41.0



▲ Annual growth rate  
▼ Annual growth rate

## 1. PENGENALAN

Laporan ini membentangkan statistik yang dijana daripada Survei Perbelanjaan Perlindungan Alam Sekitar yang dijalankan pada 2021 bagi tahun rujukan 2020. Sektor yang diliputi dalam survei ini ialah:

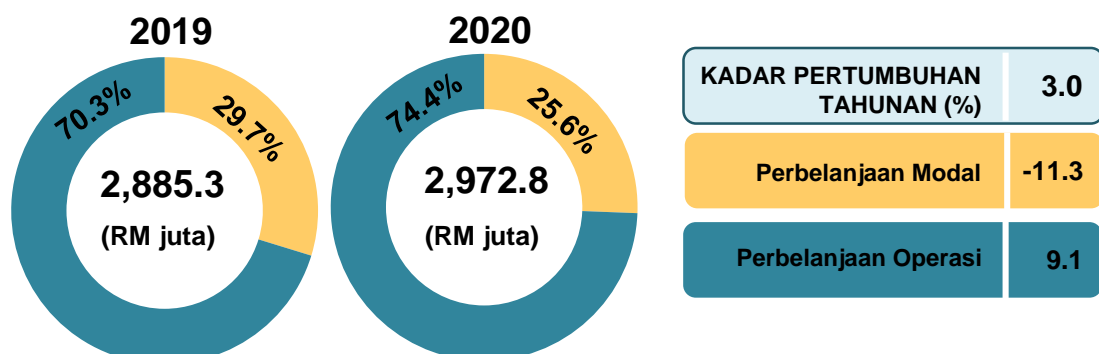
- a. Pertanian, perhutanan & perikanan;
- b. Perlombongan & pengkuarian;
- c. Pembuatan;
- d. Pembinaan; dan
- e. Perkhidmatan.

## 2. PRESTASI KESELURUHAN

Penularan COVID-19 pada tahun 2020 telah mengubah landskap sosio-ekonomi dunia secara keseluruhan termasuk Malaysia dengan Keluaran Dalam Negeri Kasar (KDNK) merekodkan pertumbuhan negatif 5.5 peratus (2019: 4.4%). Dalam usaha membendung penularan virus ini, kerajaan telah melaksanakan Perintah Kawalan Pergerakan (PKP) di mana hanya sektor perkhidmatan perlu (*essential services*) sahaja dibenarkan beroperasi dan secara tidak langsung turut memberi kesan terhadap perbelanjaan perlindungan alam sekitar oleh industri di Malaysia.

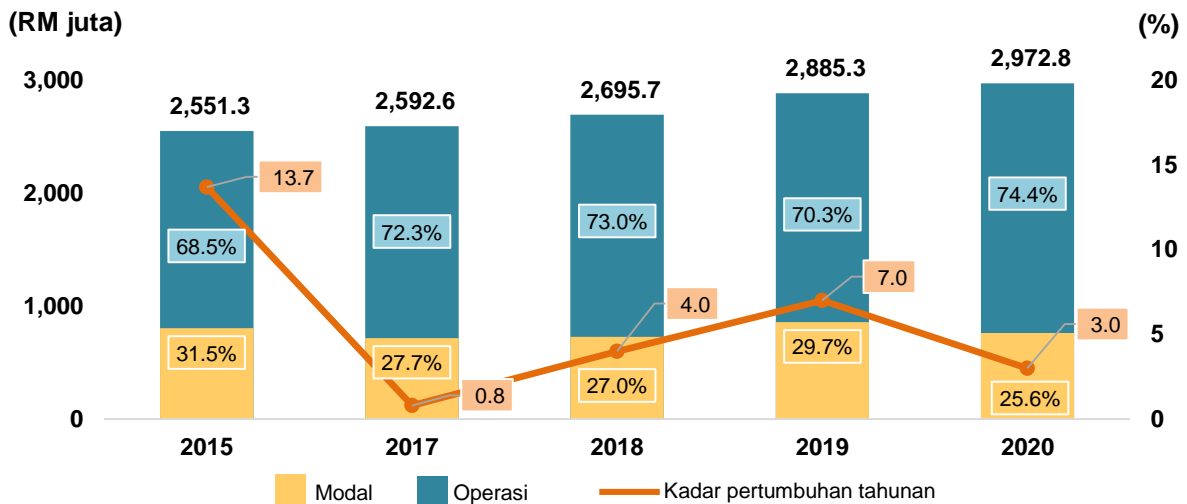
Perbelanjaan perlindungan alam sekitar pada tahun 2020 mencatatkan kadar pertumbuhan tahunan 3.0 peratus dengan nilai RM2,972.8 juta. Perbelanjaan operasi kekal mendominasi perbelanjaan perlindungan alam sekitar dengan sumbangan sebanyak 74.4 peratus dan merekodkan kadar pertumbuhan tahunan positif iaitu 9.1 peratus kepada RM2,211.4 juta. Manakala, perbelanjaan modal menyumbang sebanyak 25.6 peratus atau RM761.4 juta, mencatatkan kadar pertumbuhan negatif 11.3 peratus.

### Paparan 1: Jumlah perbelanjaan perlindungan alam sekitar, 2019 dan 2020



Walaupun ekonomi Malaysia menguncup pada tahun 2020 ekoran penularan COVID-19, perbelanjaan perlindungan alam sekitar mencatatkan pertumbuhan positif walaupun pada kadar yang lebih perlahan sebanyak 3.0 peratus berbanding tahun sebelumnya.

**Carta 1: Siri masa perbelanjaan perlindungan alam sekitar, Malaysia (2015-2020)\***

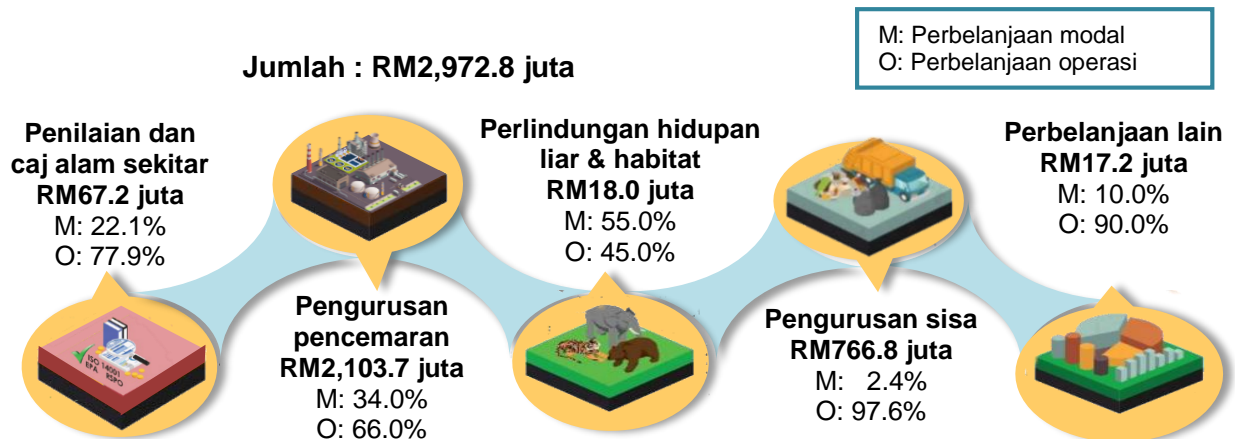


\*Nota: Survei ini tidak dilaksanakan pada tahun 2017 bagi tahun rujukan 2016. Kadar pertumbuhan tahunan 2017 merujuk kepada kadar pertumbuhan tahunan dikompaun (CAGR).

### 3. PERBELANJAAN PERLINDUNGAN ALAM SEKITAR MENGIKUT JENIS PERBELANJAAN

Perbelanjaan pengurusan pencemaran dan perbelanjaan pengurusan sisa merupakan perbelanjaan utama yang dibuat oleh industri di Malaysia dengan kedua-dua perbelanjaan ini mendominasi hampir 97.0 peratus daripada keseluruhan perbelanjaan pada tahun 2020. Perbelanjaan pengurusan pencemaran direkodkan sebanyak RM2,103.7 juta atau sumbangan sebanyak 70.8 peratus manakala perbelanjaan pengurusan sisa pula direkodkan sebanyak RM766.8 juta dengan sumbangan sebanyak 25.8 peratus. Tiga lagi perbelanjaan yang dibuat bagi tujuan perlindungan alam sekitar adalah perbelanjaan penilaian dan caj alam sekitar (RM67.2 juta; 2.3%), perbelanjaan perlindungan hidupan liar & habitat (RM18.0 juta; 0.6%) dan perbelanjaan lain (RM17.2 juta; 0.6%). **[Paparan 2]**

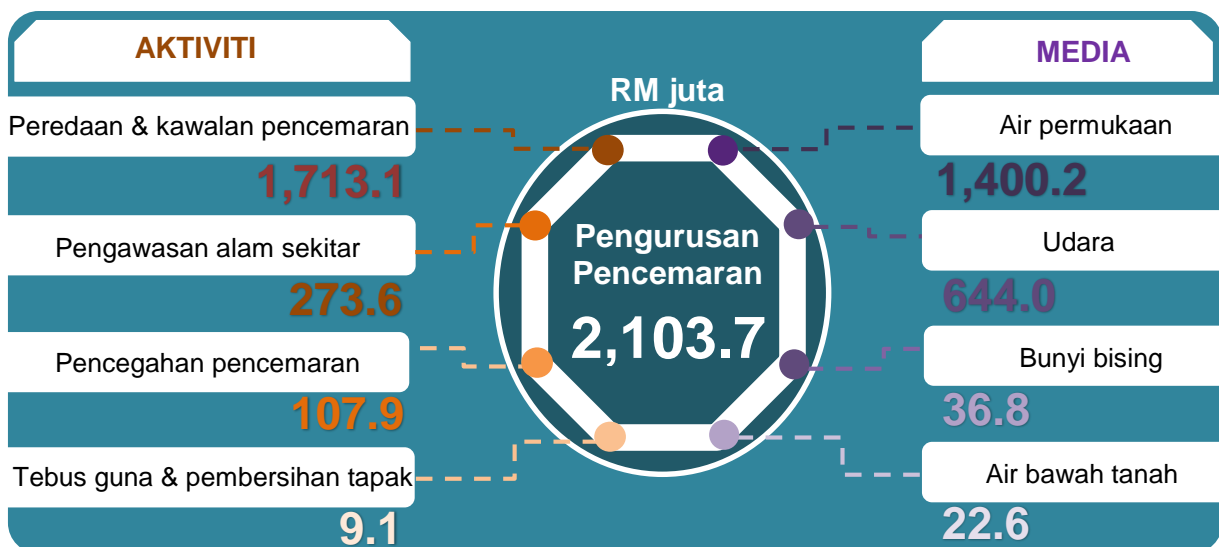
**Paparan 2: Perbelanjaan perlindungan alam sekitar mengikut jenis perbelanjaan, 2020**



Penyumbang terbesar dalam perbelanjaan pengurusan pencemaran ialah peredaan & kawalan pencemaran dengan sumbangan sebanyak 81.4 peratus (RM1,713.1 juta). Ini diikuti aktiviti pengawasan alam sekitar dan pencegahan pencemaran dengan sumbangan masing-masing 13.0 dan 5.1 peratus.

Perbelanjaan pengurusan pencemaran mengikut media pula, 66.6 peratus daripadanya dibelanjakan bagi media air permukaan iaitu sebanyak RM1,400.2 juta dan 30.6 peratus dibelanjakan bagi media udara (RM644.0 juta). Manakala selebihnya pula dibelanjakan bagi media bunyi bising dan air bawah tanah masing-masing sebanyak RM36.8 juta (1.8%) dan RM22.6 juta (1.1%).

**Paparan 3: Perbelanjaan pengurusan pencemaran mengikut aktiviti dan media, 2020**



#### 4. PERBELANJAAN PERLINDUNGAN ALAM SEKITAR MENGIKUT SEKTOR

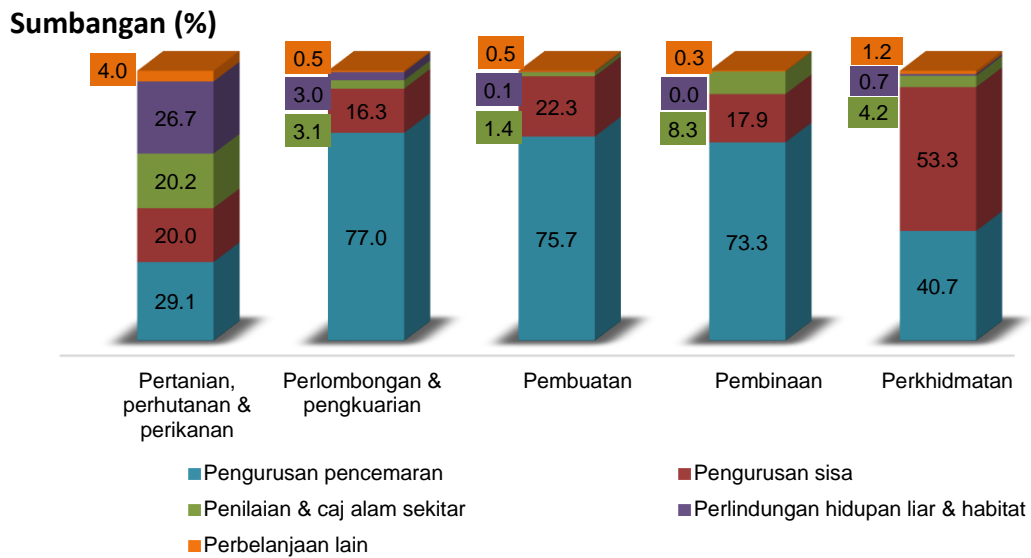
Sektor Pembuatan menyumbang sebahagian besar perbelanjaan perlindungan alam sekitar yang dibuat pada tahun 2020 dengan nilai perbelanjaan sebanyak RM2,382.4 juta atau sumbangan sebanyak 80.1 peratus. Di samping itu, sektor Perkhidmatan pula merupakan penyumbang kedua tertinggi dengan perbelanjaan sebanyak RM366.7 juta atau 12.3 peratus. Manakala bagi sektor Perlombongan & pengkuarian, Pembinaan dan Pertanian, perhutanan & perikanan pula masing-masing merekodkan perbelanjaan sebanyak RM100.4 juta (3.4%), RM88.4 juta (3.0%) dan RM34.9 juta (1.2%). Berdasarkan prestasi siri masa dari tahun 2015 sehingga 2020, sektor Pembuatan kekal mendominasi perbelanjaan perlindungan alam sekitar dengan purata sumbangan sebanyak 72.8 peratus.

Paparan 4: Perbelanjaan perlindungan alam sekitar mengikut sektor, 2020



Pengurusan pencemaran merupakan perbelanjaan utama bagi semua sektor pada 2020 kecuali sektor Perkhidmatan. Sektor Perlombongan & pengkuarian mencatatkan perbelanjaan pengurusan pencemaran sebanyak 77.0 peratus daripada keseluruhan perbelanjaan, Pembuatan (75.7%) dan Pembinaan (73.3%). Perbelanjaan pengurusan sisa pula merupakan perbelanjaan kedua terbesar bagi semua sektor kecuali Pertanian, perhutanan & perikanan. Perbelanjaan kedua terbesar bagi sektor Pertanian, perhutanan & perikanan adalah perbelanjaan perlindungan hidupan liar & habitat sebanyak 26.7 peratus. **[Carta 2]**

Carta 2: Perbelanjaan perlindungan alam sekitar mengikut sektor, 2020



### 5. PERBELANJAAN PERLINDUNGAN ALAM SEKITAR MENGIKUT NEGERI

Perbelanjaan perlindungan alam sekitar mengikut negeri didominasi oleh Johor dengan RM808.8 juta atau sumbangan sebanyak 27.2 peratus. Ini diikuti oleh Selangor dengan RM530.4 juta (17.8%) dan Terengganu dengan RM236.4 juta (8.0%). Perbelanjaan oleh tiga negeri ini menyumbang kepada 53.0 peratus daripada keseluruhan perbelanjaan yang direkodkan pada 2020.

Paparan 5: Perbelanjaan perlindungan alam sekitar dan peratus sumbangan mengikut negeri, 2020

RM juta   % sumbangan		MALAYSIA		RM2,972.8 juta	
	Johor	808.8   27.2		109.5   3.7	Sabah
	Selangor	530.4   17.8		106.2   3.6	Melaka
	Terengganu	236.4   8.0		95.8   3.2	Kedah
	Sarawak	235.6   7.9		84.6   2.8	Negeri Sembilan
	W.P. Kuala Lumpur	224.0   7.5		28.9   1.0	Kelantan
	Pulau Pinang	211.5   7.1		6.3   0.2	Perlis
	Pahang	170.3   5.7		1.4   0.0	W.P. Labuan
	Perak	122.6   4.1		0.5   0.0	W.P. Putrajaya

### PERBELANJAAN PERLINDUNGAN ALAM SEKITAR DI KALA PANDEMIK

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Bahagian Perangkaan Pertanian dan Alam Sekitar

#### PENGENALAN

Tahun 2020 merupakan tahun yang mencabar kepada semua pemain industri di Malaysia lantaran pelaksanaan Perintah Kawalan Pergerakan (PKP) dalam usaha membendung penularan pandemik COVID-19. Situasi sukar yang dihadapi oleh pemain industri telah memberi kesan kepada hasil pengeluaran dan sebahagian industri menghadapi kekurangan tenaga pekerja manakala sebahagian yang lain mengambil langkah yang lebih drastik dengan mengurangkan tenaga kerja demi meneruskan kelangsungan syarikat. Pandemik ini menyebabkan kadar pengangguran melonjak kepada 4.5 peratus buat pertama kali selepas tiga dekad (1990: 4.5%). Secara amnya, syarikat meneliti perbelanjaan mereka bagi memastikan kelangsungan perniagaan mereka ketika pandemik.

#### KESAN COVID-19 KE ATAS PERBELANJAAN MODAL

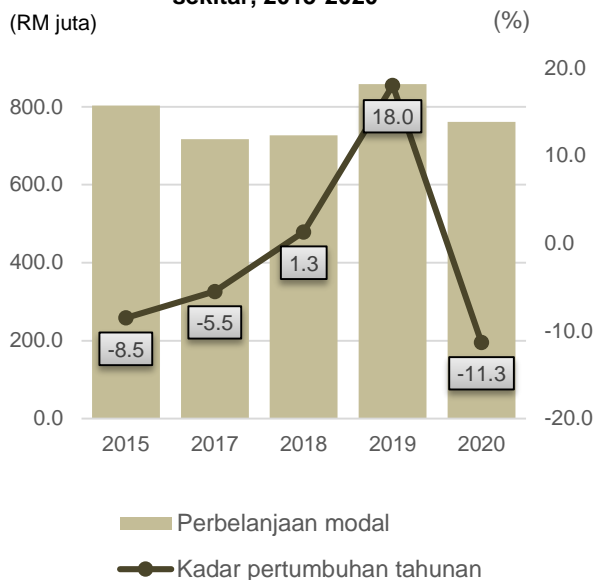
Perbelanjaan perlindungan alam sekitar (PPAS) bagi tahun rujukan 2020 merekodkan pertumbuhan sederhana sebanyak 3.0 peratus, lebih perlahan dari pertumbuhan yang direkodkan pada tahun sebelumnya. Pertumbuhan ini didorong oleh perbelanjaan operasi sebanyak 9.1 peratus, manakala perbelanjaan modal pula menunjukkan penurunan sebanyak 11.3 peratus. Perbelanjaan operasi bagi perlindungan alam sekitar secara amnya meliputi perbelanjaan bagi memenuhi keperluan perundangan berkaitan alam sekitar dan perlu dipatuhi selagi sesuatu pertubuhan itu masih beroperasi. Walau bagaimanapun, semasa kesuraman ekonomi akibat pandemik, pemain industri turut menghadkan perbelanjaan modal bagi perlindungan alam sekitar dan senario ini seiring dengan statistik pembentukan modal tetap kasar (PTMK) oleh sektor swasta yang menyusut sebanyak 12.0 peratus pada tahun 2020 (harga semasa), iaitu penyusutan terbesar semenjak Krisis Kewangan Asia pada tahun 1998<sup>1</sup>.

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<sup>1</sup> Penerbitan KDNK Tahunan 2015-2021



**Carta 1: Perbelanjaan modal perlindungan alam sekitar, 2015-2020**



Nota: Survei PPAS tidak dilaksanakan pada tahun 2017 bagi tahun rujukan 2016. Kadar pertumbuhan tahunan 2017 merujuk kepada kadar pertumbuhan tahunan dikompaun (CAGR).

**Carta 2: PTMK sektor swasta pada harga semasa, 2016-2020**



## PRESTASI PPAS OLEH SEKTOR PEMBUATAN

Secara umumnya, sektor Pembuatan merupakan salah satu pemacu utama bagi PPAS pada tahun 2020 dengan pertumbuhan sebanyak 9.2 peratus (2019: 19.8%). Dari segi sumbangan, sektor ini menyumbang 80.1 peratus kepada keseluruhan PPAS di Malaysia. Empat subsektor utama dalam PPAS sektor Pembuatan ialah produk petroleum bertapis, minyak sawit mentah, sebatian bukan organik serta sarung tangan getah.

PPAS bagi subsektor Pembuatan sarung tangan getah menunjukkan peningkatan yang ketara selari dengan situasi pandemik yang melanda negara. Industri ini membuat perbelanjaan perlindungan alam sekitar sekitar 2.3 kali lebih tinggi daripada tahun sebelumnya, dengan sumbangan sebanyak 5.9 peratus daripada keseluruhan sektor Pembuatan. Eksport sarung tangan getah meningkat dengan ketara sebanyak 104.5 peratus kepada RM35.9 bilion pada 2020 (2019 RM17.6 bilion) berbanding dengan purata pertumbuhan tahunan sebanyak 9.8 peratus bagi tempoh 2016 hingga 2019.<sup>2</sup> [Jadual 1]

<sup>2</sup> Statistik Perdagangan Malaysia Mengikut Negeri, 2022

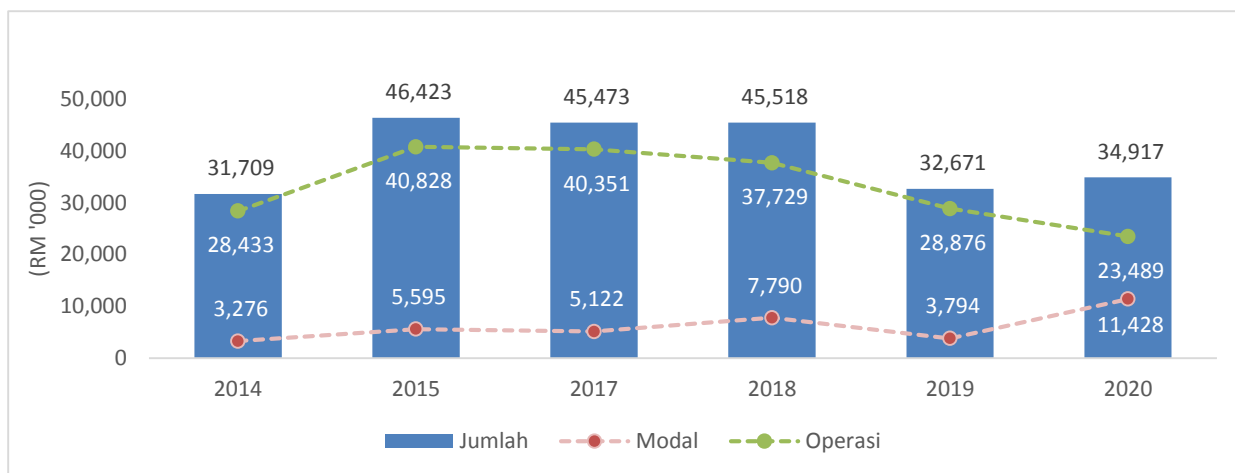
Jadual 1: PPAS mengikut subsektor Pembuatan, 2019 dan 2020

Subsektor Pembuatan	Jumlah PPAS (RM juta)		Sumbangan (%)		Kedudukan	
	2019	2020	2019	2020	2019	2020
Produk petroleum bertapis	312.2	438.9	10.9	14.7	2	1
Minyak sawit mentah	382.4	312.0	13.3	10.5	1	2
Sebatian bukan organik	130.3	239.1	4.5	8.0	3	3
Sarung tangan getah	77.2	175.3	2.7	5.9	7	4
Diod, transistor dan alatan semikonduktor yang seumpamanya	123.3	141.3	4.3	4.7	4	5
Kimia organik asas	55.9	130.9	1.9	4.4	8	6
Plastik dalam bentuk primer	78.8	118.3	2.7	4.0	5	7
Kepingan venier dan papan lapis	39.7	42.1	1.4	1.4	16	8
Produk kaca lain	48.5	37.3	1.7	1.2	9	9
Produk kimia lain	32.8	29.6	0.8	1.0	20	10

### PRESTASI PPAS OLEH SEKTOR PERTANIAN

Sektor Pertanian turut merekodkan peningkatan PPAS dengan pertumbuhan sebanyak 6.9 peratus kepada RM34.9 juta. Pertumbuhan ini dipacu oleh peningkatan perbelanjaan modal yang ketara, manakala perbelanjaan operasi pula merekodkan penurunan sebanyak 18.7 peratus. Namun begitu, perbelanjaan operasi masih lagi penyumbang utama iaitu 67.3 peratus manakala sumbangan perbelanjaan modal adalah 32.7 peratus. Peningkatan perbelanjaan modal adalah disokong oleh subsektor tanaman kelapa sawit. Sektor Pertanian merupakan antara sektor yang menyokong pertumbuhan ekonomi semasa tempoh pandemik di samping sektor Pembuatan berikutan peningkatan harga komoditi. Purata harga minyak sawit mentah bagi tahun 2020 meningkat 30.5 peratus kepada RM2,765 per tan (harga purata 2019: RM2,119) seperti yang dilaporkan oleh Lembaga Minyak Sawit Malaysia (MPOB). **[Carta 3]**

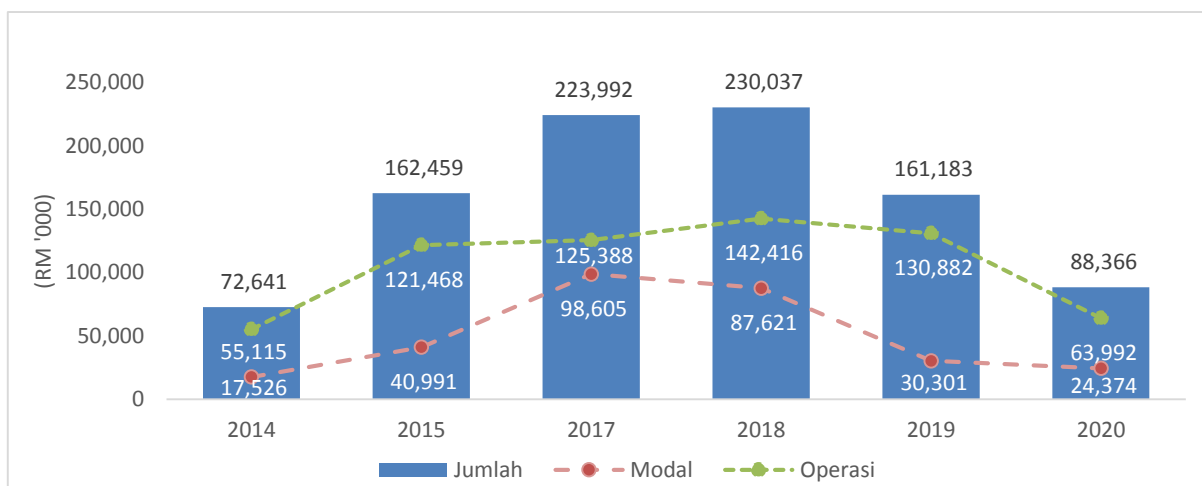
Carta 3: PPAS sektor Pertanian, 2014-2020



**PRESTASI PPAS SEKITAR OLEH SEKTOR PEMBINAAN**

Sektor Pembinaan menunjukkan penguncupan terbesar bagi PPAS pada tahun 2020 iaitu sebanyak 45.2 peratus kepada RM88.4 juta (2019: RM161.2 juta). Secara purata, sumbangan sektor ini kepada keseluruhan PPAS dari 2015 sehingga 2019 adalah sekitar 7.0 peratus dan telah menyusut kepada 3.0 peratus pada tahun 2020. Berdasarkan rekod Lembaga Pembangunan Industri Pembinaan Malaysia (CIDB), nilai projek pembinaan yang dianugerahkan jatuh 42.0 peratus kepada RM55.3 bilion bagi tempoh Januari hingga Oktober 2020 berbanding RM94.6 bilion dalam tempoh yang sama tahun sebelumnya. Anggaran kerugian yang dialami oleh industri pembinaan tempoh 18 Mac (ketika Perintah Kawalan Pergerakan bermula) hingga 14 April 2020 adalah RM11.6 bilion dan RM6.9 bilion lagi direkodkan berikutan pembukaan semula 13 subsektor dari 15 April hingga 1 Mei 2020<sup>3</sup>.

Carta 4: PPAS sektor Pembinaan, 2014-2020

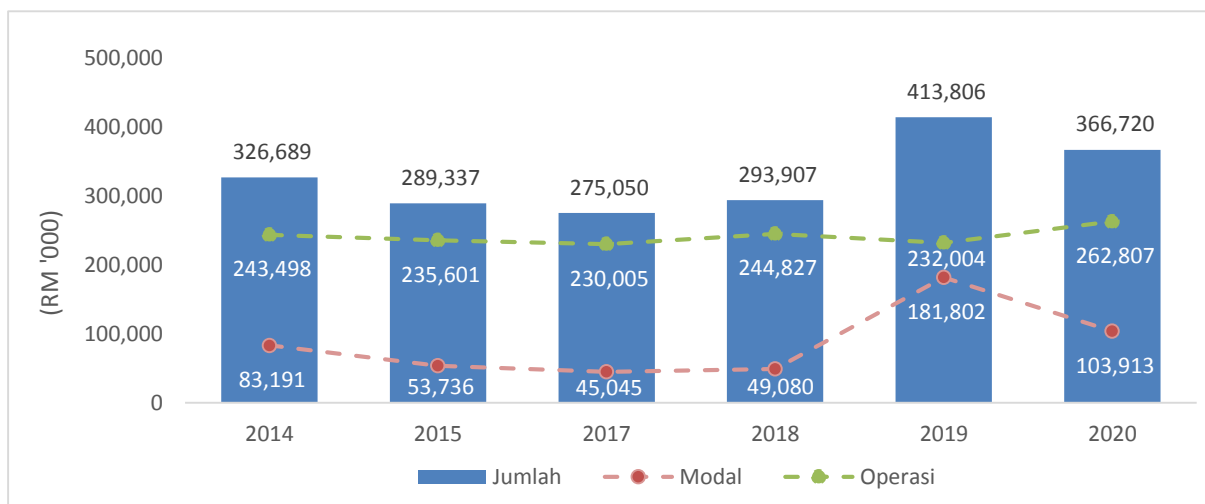


<sup>3</sup> <https://www.sinarharian.com.my/article/115841/BERITA/Nasional/Covid-19-tinggalkan-kesan-berpanjangan-ke-atas-industri-pembinaan>

**PRESTASI PPAS OLEH SEKTOR PERKHIDMATAN**

Di samping itu, PPAS oleh sektor Perkhidmatan turut mencatatkan penurunan sebanyak 11.4 peratus kepada RM366.7 juta berbanding RM413.8 juta pada 2019. Penurunan ini didorong oleh penyusutan komponen perbelanjaan modal di mana pada tahun 2019, perbelanjaan modal bagi sektor Perkhidmatan telah melonjak hampir empat kali ganda kepada RM181.8 juta (sumbangan 21.2%) berbanding RM49.1 juta (sumbangan 6.8%) pada 2018. Walau bagaimanapun, perbelanjaan operasi bagi tujuan perlindungan alam sekitar mencatatkan peningkatan 13.3 peratus kepada RM262.8 juta berbanding negatif 5.2 peratus (RM232.0 juta) pada tahun sebelumnya.

**Carta 5: PPAS sektor Perkhidmatan, 2014-2020**



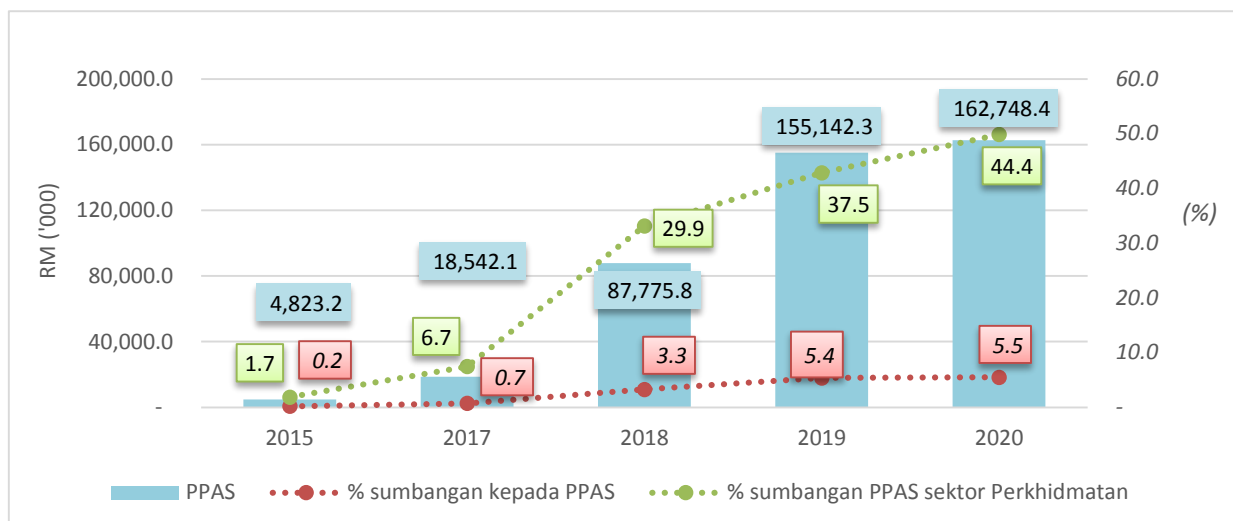
Walaupun bagaimanapun, PPAS bagi aktiviti rawatan dan pelupusan sisa menunjukkan prestasi yang lebih baik dengan nilai perbelanjaan berjumlah RM162.7 juta (2019: RM155.1 juta), bertumbuh sebanyak 4.9 peratus. Menurut Jabatan Alam Sekitar (JAS), sebanyak 7,185.2 ribu tan metrik buangan terjadual telah dihasilkan pada 2020, meningkat 79.0 peratus berbanding 4,013.2 ribu tan metrik yang dilaporkan pada 2019<sup>4</sup>. Penularan COVID-19 pada tahun 2020 turut menyaksikan 20.0 peratus peningkatan buangan klinikal daripada fasiliti kesihatan dan juga pusat kuarantin COVID-19 yang diwartakan oleh kerajaan yang dikategorikan sebagai buangan terjadual<sup>5</sup>.

**[Carta 6]**

<sup>4</sup> Kompendium Perangkaan Alam Sekitar 2021

<sup>5</sup> <https://www.astroawani.com/berita-malaysia/sisa-klinikal-negara-meningkat-20-peratus-sejak-covid19-melanda-266542>

Carta 6: PPAS oleh aktiviti rawatan dan pelupusan sisa, 2015-2020



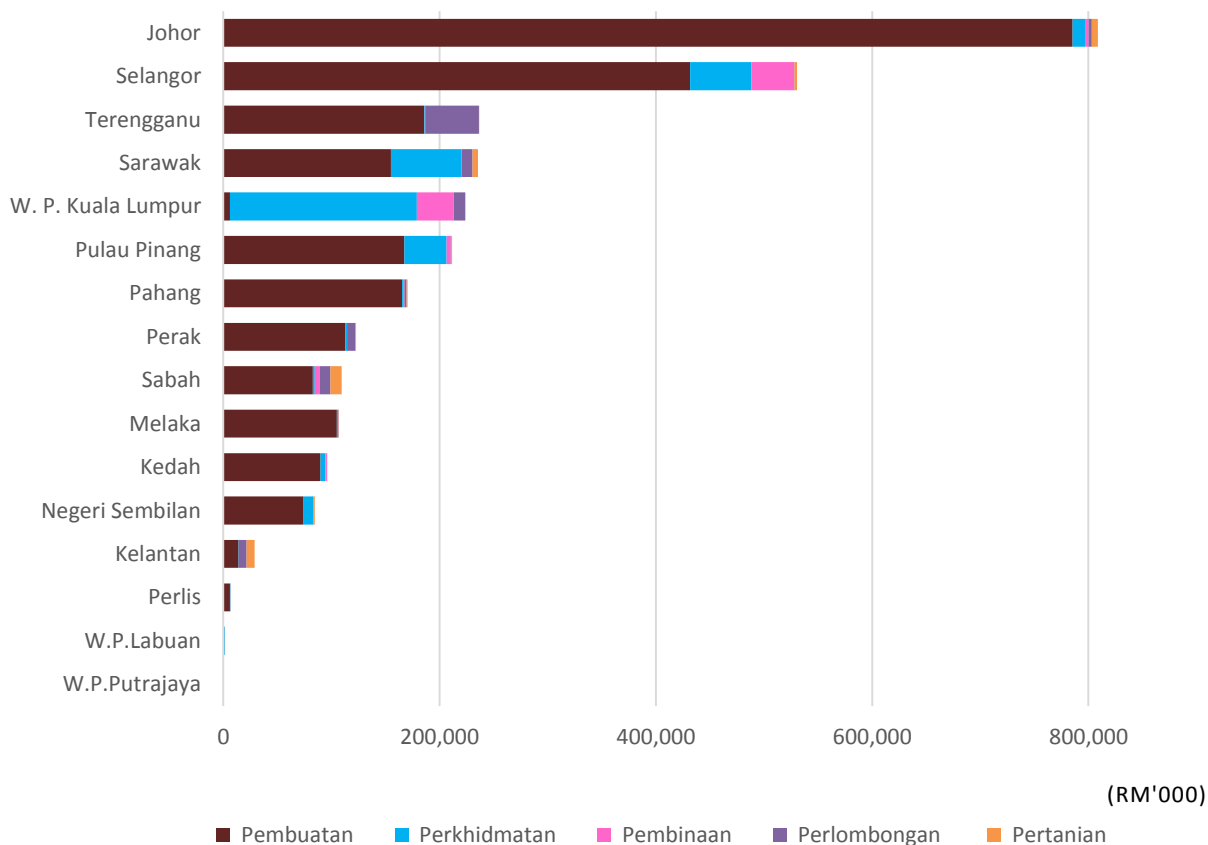
### PRESTASI PPAS MENGIKUT NEGERI

Johor merupakan penyumbang terbesar PPAS di Malaysia dengan sumbangan sebanyak 27.2 peratus (2019: 23.5%), diikuti oleh Selangor dengan 17.8 peratus (2019: 18.8%), di mana PPAS bagi kedua-dua negeri ini didominasi oleh sektor Pembuatan. Perbelanjaan tertinggi yang direkodkan di Johor adalah dalam aktiviti pembuatan produk petroleum bertapis dengan sumbangan 42.4 peratus kepada sektor Pembuatan di Johor. Selangor pula merekodkan aktiviti pembuatan sarung tangan sebagai penyumbang utama dengan sumbangan 29.3 peratus kepada sektor Pembuatan di Selangor. Sementara itu, Terengganu memperbaiki kedudukan iaitu di tempat ketiga berbanding tempat kelapan pada tahun 2019 didorong oleh peningkatan perbelanjaan modal dalam subsektor Pembuatan sebatian bukan organik, pembuatan minyak sawit mentah dan pembuatan kimia organik asas. **[Jadual 2] [Paparan 7]**

Jadual 2: PPAS Mengikut Negeri, 2019 dan 2020

Negeri	PPAS (RM '000)		Kadar pertumbuhan tahunan (%)	Sumbangan (%)		Kedudukan	
	2019	2020		2019	2020	2019	2020
JOHOR	678,474	808,783	19.2	23.5	27.2	1	1
SELANGOR	543,455	530,436	(2.4)	18.8	17.8	2	2
TERENGGANU	126,597	236,448	86.8	4.4	8.0	8	3
SARAWAK	251,732	235,613	(6.4)	8.7	7.9	4	4
W. P. KUALA LUMPUR	292,570	223,988	(23.4)	10.1	7.5	3	5
PULAU PINANG	177,632	211,486	19.1	6.2	7.1	6	6
PAHANG	155,698	170,315	9.4	5.4	5.7	7	7
PERAK	93,303	122,630	31.4	3.2	4.1	10	8
SABAH	249,863	109,520	(56.2)	8.7	3.7	5	9
MELAKA	83,447	106,161	27.2	2.9	3.6	12	10
KEDAH	113,265	95,790	(15.4)	3.9	3.2	9	11
NEGERI SEMBILAN	91,805	84,634	(7.8)	3.2	2.8	11	12
KELANTAN	10,650	28,912	303.5	0.4	1.0	14	13
PERLIS	15,392	6,258	(59.3)	0.5	0.2	13	14
W.P.LABUAN	1,144	1,366	19.4	0.0	0.1	15	15
W.P.PUTRAJAYA	232	462	99.0	0.0	0.0	16	16

Carta 7: PPAS mengikut negeri, 2020



**KESIMPULAN**

Kesimpulannya, komitmen pemain industri terhadap kelestarian alam sekitar perlu diberi perhatian yang jelas kerana interaksi antara industri dan alam sekitar adalah cerminan kepada pembangunan ekonomi yang mampan. Berdasarkan Rancangan Malaysia Kedua Belas (RMKe-12), salah satu cabaran yang dihadapi dalam tempoh pelaksanaan RMKe-11 ialah amalan penggunaan dan pengeluaran yang tidak mampan di mana kebanyakan sektor ekonomi di Malaysia mengamalkan ekonomi linear yang kurang cekap dalam penggunaan sumber dan seterusnya menghasilkan jumlah sisa yang tinggi. Amalan penggunaan dan pengeluaran yang tidak mampan ini menjejaskan alam sekitar dan daya tahan ekonomi dalam jangka panjang dan memerlukan kos pembersihan dan mitigasi yang tinggi. Kerajaan Malaysia terus komited dalam memastikan kesihatan bumi dan kualiti hidup yang lebih baik, meningkatkan daya tahan negara serta memulihara dan melindungi alam sekitar untuk generasi masa kini dan yang akan datang melalui agenda pembangunan bersih, hijau dan berdaya tahan melalui pendekatan keseluruhan negara.

**PENAFIAN**

Pandangan yang dinyatakan adalah pandangan penulis dan tidak mewakili pandangan DOSM.

**PENGHARGAAN**

Penulis merakamkan ucapan terima kasih kepada Pn. Nazaria Baharudin atas sumbangan beliau dalam penyediaan artikel ini.

### 1. INTRODUCTION

This report presents findings from the Environmental Protection Expenditure Survey conducted in 2021 for the reference year 2020. The sectors covered in this survey are:

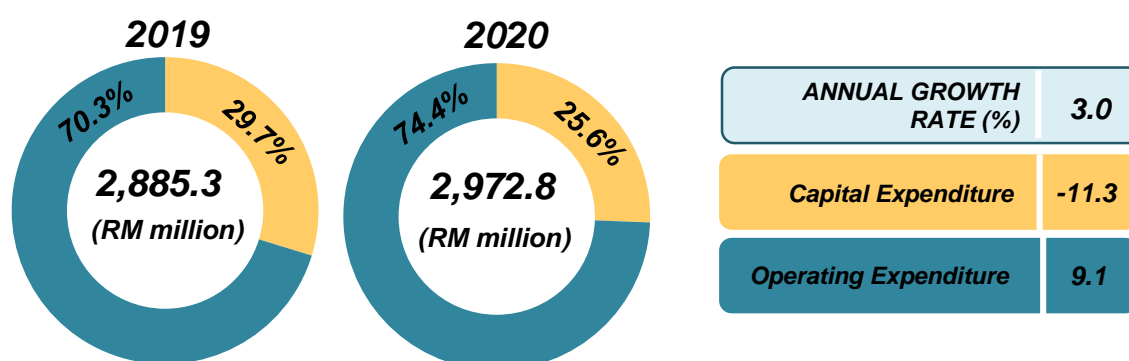
- a. Agriculture, forestry & fishing;
- b. Mining & quarrying;
- c. Manufacturing;
- d. Construction; and
- e. Services.

### 2. OVERALL PERFORMANCE

The outbreak of COVID-19 in 2020 has changed the world socio-economic landscape as a whole including Malaysia whereby the Gross Domestic Product (GDP) recorded a negative growth of 5.5 per cent (2019: 4.4%). In order to control the spread of this virus, the government has implemented Movement Control Order (MCO) in which only essential services were allowed to operate and this has indirectly affected the industry's environmental protection expenditure in Malaysia.

Environmental protection expenditure recorded an annual growth rate of 3.0 per cent in 2020 with a value of RM2,972.8 million. The operating expenditure remained the main contributor with 74.4 per cent share and recorded a positive growth of 9.1 per cent to RM2,211.4 million. On the other hand, capital expenditure accounted for 25.6 per cent share at RM761.4 million, registering a negative growth of 11.3 per cent.

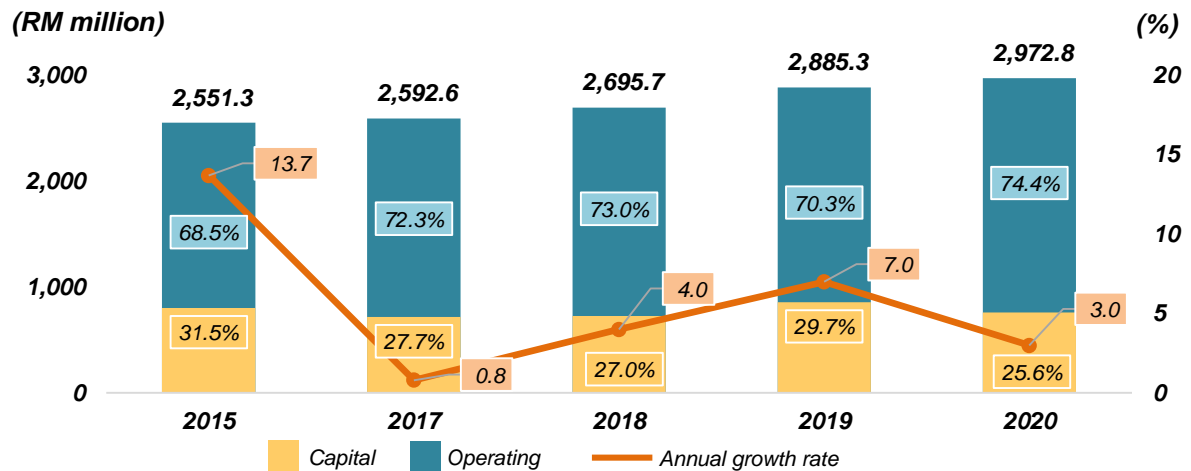
**Exhibit 1: Environmental protection expenditure, 2019 and 2020**





As Malaysia's economy contracted in 2020 due to the COVID-19 outbreak, the environmental protection expenditure showed positive growth, albeit at a slower rate of 3.0 per cent as compared to the previous year.

**Chart 1: Time series of the environmental protection expenditure, Malaysia (2015-2020)\***

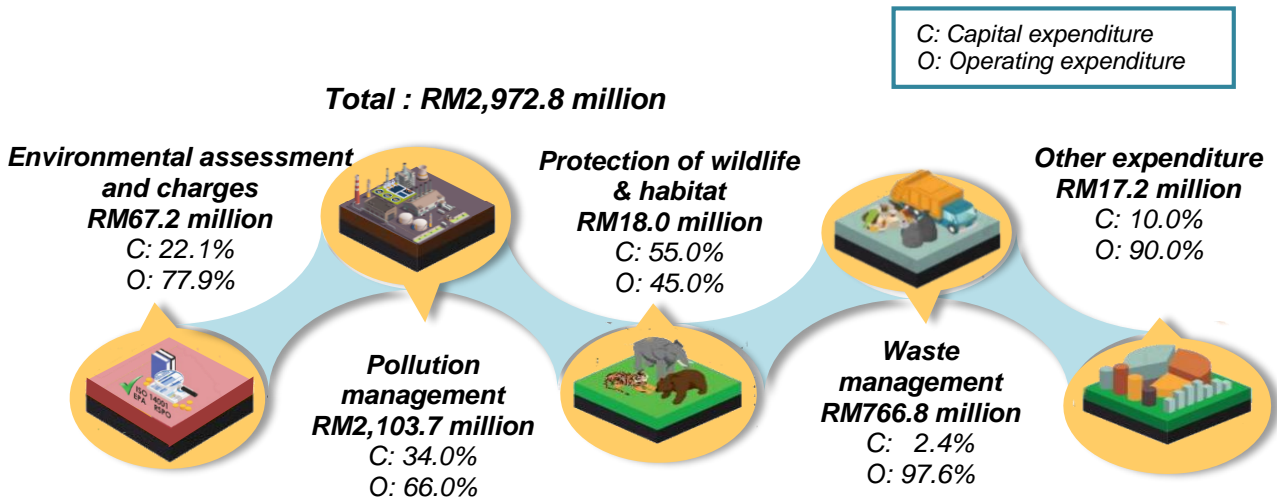


\*Note: This survey is not conducted in 2017 for reference year 2016. Annual growth rate for 2017 refers to compounded annual growth rate (CAGR)

### 3. ENVIRONMENTAL PROTECTION EXPENDITURE BY TYPE OF EXPENDITURE

Pollution management and waste management expenditure were the major expenditure incurred by Malaysian industries with both expenses dominating nearly 97.0 per cent of the total expenditure in 2020. Pollution management expenditure was RM2,103.7 million or a contribution of 70.8 per cent while waste management expenditure amounted at RM766.8 million with a contribution of 25.8 per cent. The other three expenditures made for environmental protection purposes were environmental assessment and charges (RM67.2 million; 2.3%), protection of wildlife & habitat (RM18.0 million; 0.6%) and other expenditures (RM17.2 million; 0.6%). **[Exhibit 2]**

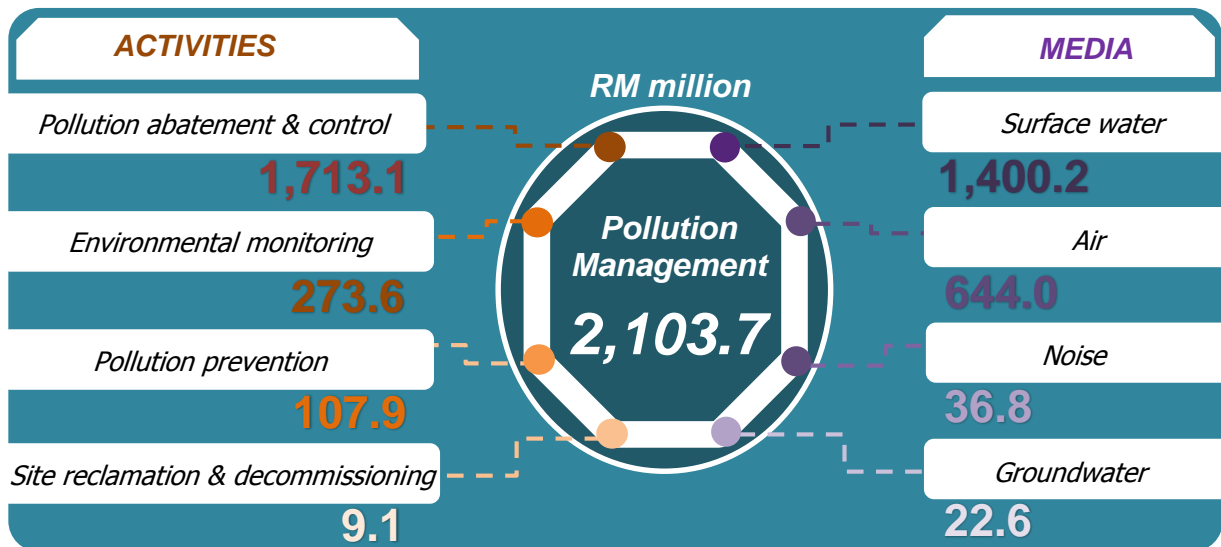
**Exhibit 2: Environmental protection expenditure by type of expenditure, 2020**



The largest contributor in pollution management expenditure was pollution abatement & control with a share of 81.4 per cent (RM1,713.1 million). This was followed by the environmental monitoring and pollution prevention activities with a share of 13.0 and 5.1 per cent respectively.

As for pollution management expenditure by media, 66.6 per cent was spent on surface water media amounted to RM1,400.2 million and 30.6 per cent on air media (RM644.0 million). The remaining was spent on noise and groundwater media of RM36.8 million (1.8%) and RM22.6 million (1.1%) respectively.

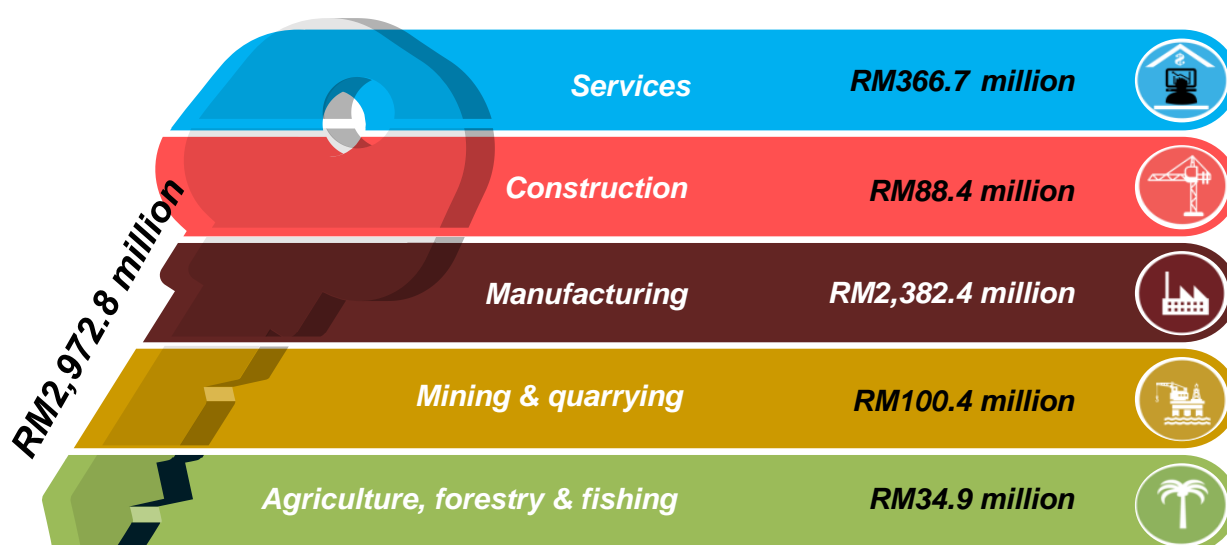
**Exhibit 3: Pollution management expenditure by activities and media, 2020**



#### 4. ENVIRONMENTAL EXPENDITURE BY SECTOR

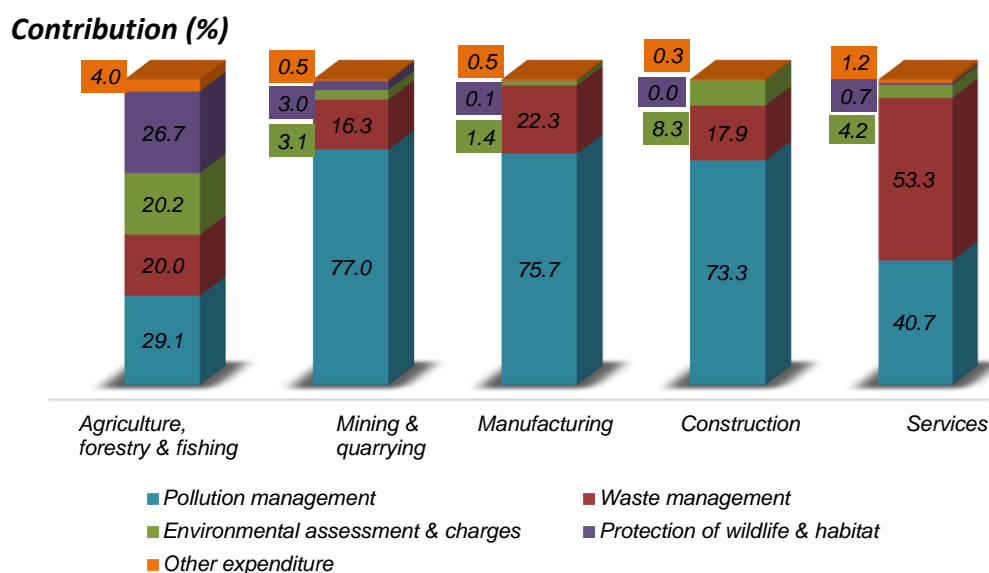
The Manufacturing sector contributed most of the environmental protection expenditure made in 2020 with a spending value of RM2,382.4 million or a contribution of 80.1 per cent while the Services sector was the second highest contributor with a spending of RM366.7 million or 12.3 per cent. Meanwhile, Mining & quarrying, Construction and Agriculture, forestry & fishing recorded RM100.4 million (3.4%), RM88.4 million (3.0%) and RM34.9 million (1.2%) respectively. Based on the time series trend from 2015 to 2020, the Manufacturing sector remains to dominate environmental protection expenditure with an average contribution of 72.8 per cent.

**Exhibit 4: Environmental protection expenditure by sector, 2020**



Pollution management is the main expenditure in 2020 for all sectors except the Services sector. The Mining & quarrying sector recorded pollution management expenditure of 77.0 per cent of the total expenditure, Manufacturing (75.7%) and Construction (73.3%). On the other hand, waste management expenditure was the second largest expenditure for all sectors except for Agriculture, forestry & fishing. The second largest expenditure for the Agriculture, forestry & fishing sector was wildlife & habitat protection expenditure at 26.7 per cent. **[Chart 2]**

















**Chart 2: Environmental protection expenditure by sector, 2020**



## 5. ENVIRONMENTAL PROTECTION EXPENDITURE BY STATE

Environmental protection expenditure by state is dominated by Johor with RM808.8 million or a contribution of 27.2 per cent. This was followed by Selangor with RM530.4 million (17.8%) and Terengganu with RM236.4 million (8.0%). Spending by these three states accounted for 53.0 per cent of the total expenditure in 2020.

**Exhibit 5: Environmental protection expenditure and contribution percentage by state, 2020**

RM million   % contribution		MALAYSIA		RM2,972.8 million	
	Johor	808.8   27.2		109.5   3.7	Sabah 
	Selangor	530.4   17.8		106.2   3.6	Melaka 
	Terengganu	236.4   8.0		95.8   3.2	Kedah 
	Sarawak	235.6   7.9		84.6   2.8	Negeri Sembilan 
	W.P. Kuala Lumpur	224.0   7.5		28.9   1.0	Kelantan 
	Pulau Pinang	211.5   7.1		6.3   0.2	Perlis 
	Pahang	170.3   5.7		1.4   0.0	W.P. Labuan 
	Perak	122.6   4.1		0.5   0.0	W.P. Putrajaya 

## **ENVIRONMENTAL PROTECTION EXPENDITURE AMIDST PANDEMIC**

*Fuziah Md. Amin, Syed Ibrahim Mohd Jamaluddin, Nazira Abdullah, Mahadi Mohd Nor, Nurul Asmahusna Asari  
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### **INTRODUCTION**

*The year 2020 is a challenging year for all industry players in Malaysia due to the implementation of the Movement Control Order (MCO) in an effort to curb the spread of COVID-19. The difficulties faced by industry players have impacted their production output and several industries have encountered labour shortages meanwhile others took extra measures by reducing their workforce to sustain the viability of the companies. This pandemic caused the unemployment rate to reach 4.5 per cent for the first time after three decades (1990: 4.5%). In general, the companies scrutinised their expenditure to ensure sustainability of their businesses during the pandemic.*

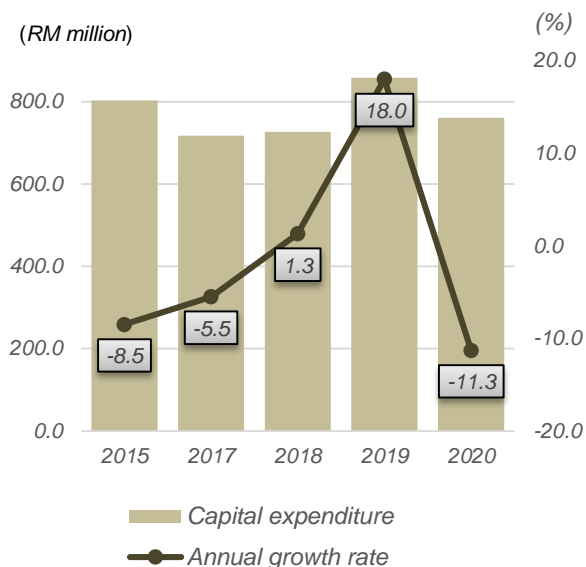
### **THE IMPACT OF COVID-19 ON CAPITAL EXPENDITURE**

*Environmental protection expenditure (EPE) for the reference year 2020 recorded a moderate growth of 3.0 per cent, slower than the growth recorded in the previous year. This growth was driven by operating expenditure of 9.1 per cent, while capital expenditure showed a decline of 11.3 per cent. The operating expenditure for environmental protection generally includes expenses to meet legal requirements related to the environment and must be complied with as long as the company is still operating. However, during the economic downturn due to pandemic, industry players were also limiting their capital spending for environmental protection and this scenario was in line with the statistics of the private sector gross fixed capital formation (GFCF) which declined by 12.0 per cent in 2020 (current prices), the largest decline since the Asian Financial Crisis in 1998<sup>1</sup>.*

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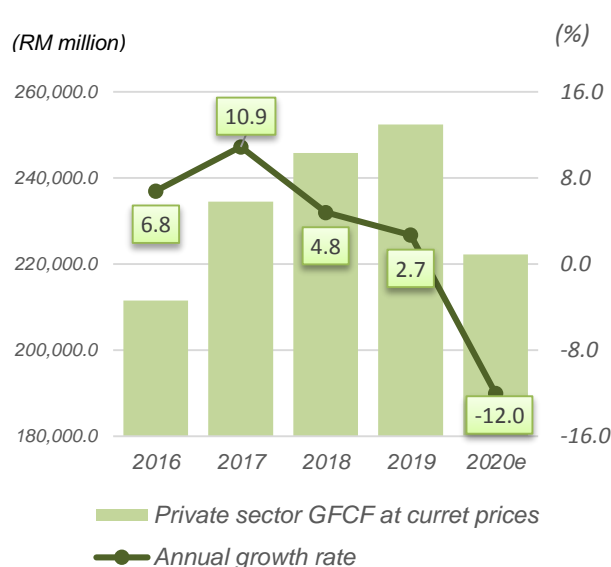
<sup>1</sup> Annual GDP 2015-2021 Publication

**Chart 1: Capital expenditure on environmental protection, 2015-2020**



Note: EPE survey was not conducted in 2017 for reference year 2016. Annual growth rate for 2017 refers to compounded annual growth rate (CAGR)

**Chart 2: Private sector GFCF at current prices, 2016-2020**



### PERFORMANCE OF EPE BY MANUFACTURING SECTOR

In general, the Manufacturing sector was one of the main drivers for the EPE in 2020 with a growth of 9.2 per cent (2019: 19.8%). In terms of contribution, this sector contributed 80.1 per cent to overall Malaysia’s EPE. Four main subsectors in Manufacturing’s EPE in were refined petroleum products, crude palm oil, inorganic compounds as well as rubber gloves.

The EPE for rubber gloves Manufacturing subsector showed a significant increase in line with the pandemic situation that hit the country. This subsector makes environmental protection spending 2.3 times higher than the previous year, with a contribution of 5.9 per cent from overall Manufacturing sector. The rubber gloves exports remarkably grew at 104.5 per cent to RM35.9 billion in 2020 (2019: RM17.6 billion) as compared to average annual growth of 9.8 per cent for the period of 2016 to 2019.<sup>2</sup> [Table 1]

<sup>2</sup> Malaysia External Trade Statistics by State, 2022

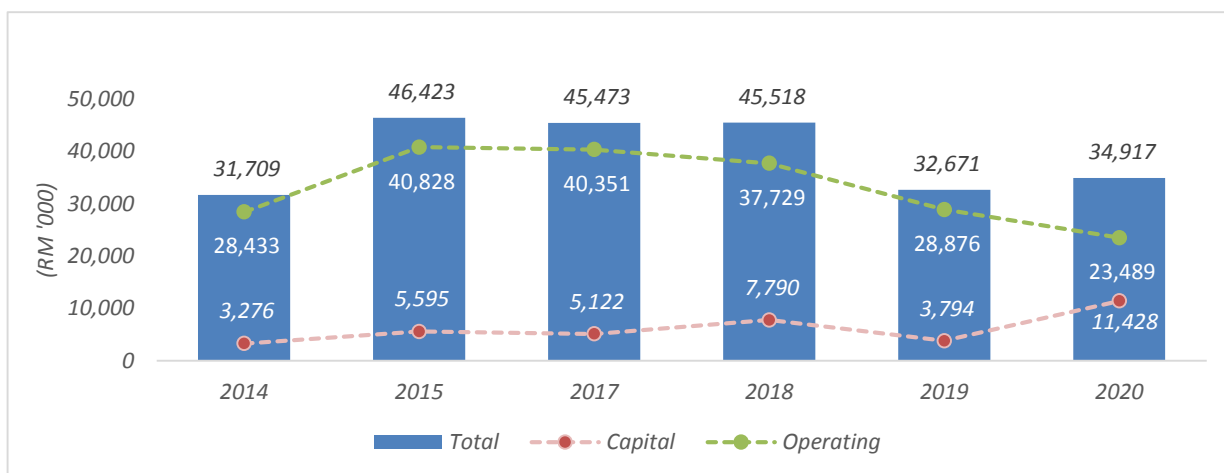
Table 1: EPE by Manufacturing subsectors, 2019 and 2020

Manufacturing subsector	Total EPE (RM million)		Share (%)		Ranking	
	2019	2020	2019	2020	2019	2020
<b>Refined petroleum products</b>	312.2	438.9	10.9	14.7	2	1
<b>Crude palm oil</b>	382.4	312.0	13.3	10.5	1	2
<b>Inorganic compounds</b>	130.3	239.1	4.5	8.0	3	3
<b>Rubber gloves</b>	77.2	175.3	2.7	5.9	7	4
<b>Diodes, transistors and similar semiconductor devices</b>	123.3	141.3	4.3	4.7	4	5
<b>Basic organic chemistry</b>	55.9	130.9	1.9	4.4	8	6
<b>Plastics in primary form</b>	78.8	118.3	2.7	4.0	5	7
<b>Veneer sheets and plywood</b>	39.7	42.1	1.4	1.4	16	8
<b>Other glass products</b>	48.5	37.3	1.7	1.2	9	9
<b>Other chemical products</b>	32.8	29.6	0.8	1.0	20	10

### PERFORMANCE OF EPE BY AGRICULTURE SECTOR

The Agriculture sector also recorded an increase in EPE with a growth of 6.9 per cent to RM34.9 million. This growth was driven by a significant increase in capital expenditure, while operating expenditure recorded a decrease of 18.7 per cent. Nevertheless, operating expenditure was still the major contributor at 67.3 per cent while the contribution of capital expenditure was 32.7 per cent. The increase in capital expenditure was mainly supported by the oil palm subsector. The Agriculture sector was among the sectors that supported economic growth during the pandemic period besides the Manufacturing sector following the increase in commodity prices. The average crude palm oil prices for year 2020 rose 30.5 per cent to RM2,765 per tonne (average price 2019: RM2,119) as reported by Malaysia Palm Oil Board (MPOB). **[Chart 3]**

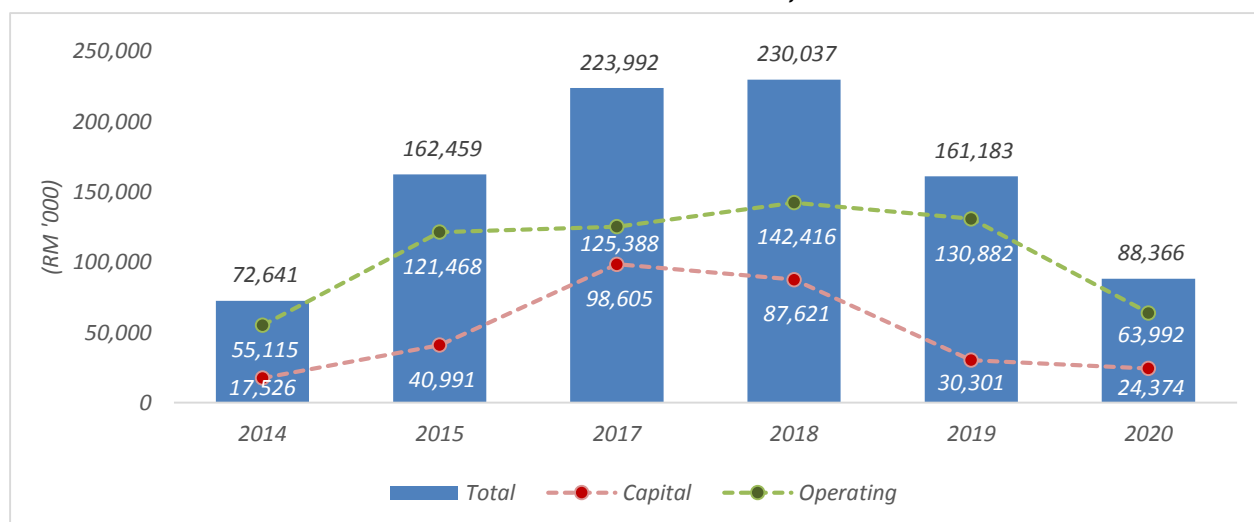
**Chart 3: EPE for Agriculture sector, 2014-2020**



**PERFORMANCE OF EPE BY CONSTRUCTION SECTOR**

The Construction sector showed the largest contraction in EPE in 2020 at 45.2 per cent to RM88.4 million (2019: RM161.2 million). On average, the sector's contribution to the EPE from 2015 to 2019 was around 7.0 per cent and declined to 3.0 per cent in 2020. Based on Malaysian Construction Industry Development Board (CIDB), the value of construction projects awarded fell 42.0 per cent to RM55.3 billion from January to October 2020 compared to RM94.6 billion in the same period previous year. The estimated loss suffered by the construction industry for the period March 18 (when the Movement Control Order commenced) to April 14, 2020 is approximately RM11.6 billion and another RM6.9 billion was recorded following the reopening of 13 subsectors from April 15 to May 1, 2020<sup>3</sup>.

**Chart 4: EPE for Construction sector, 2014-2020**



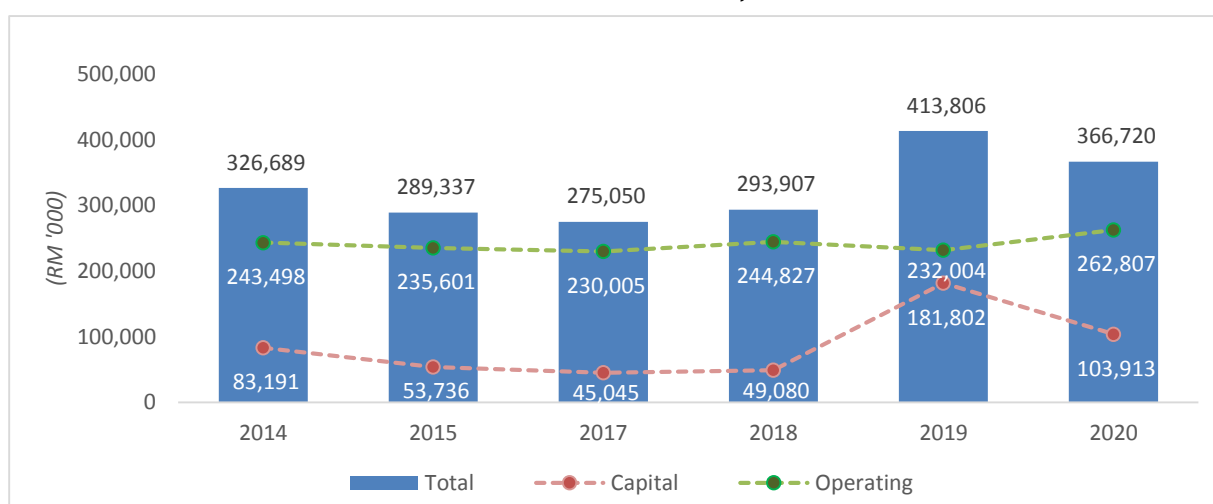
<sup>3</sup> <https://www.sinarharian.com.my/article/115841/BERITA/Nasional/Covid-19-tinggalkan-kesan-berpanjangan-ke-atas-industri-pembinaan>



## PERFORMANCE OF EPE BY SERVICES SECTOR

In addition, EPE by the Services sector also posted a decrease of 11.4 per cent to RM366.7 million compared to RM413.8 million in 2019. This decrease was driven by the decline in the capital expenditure component whereby in 2019, capital expenditure for the Services sector jumped almost four-fold to RM181.8 million (contribution 21.2%) from RM49.1 million (contribution 6.8%) in 2018. However, operating expenditure for environmental protection purposes recorded an increase of 13.3 per cent to RM262.8 million from negative 5.2 per cent (RM232.0 million) in the previous year.

Chart 5: EPE for Services sector, 2014-2020

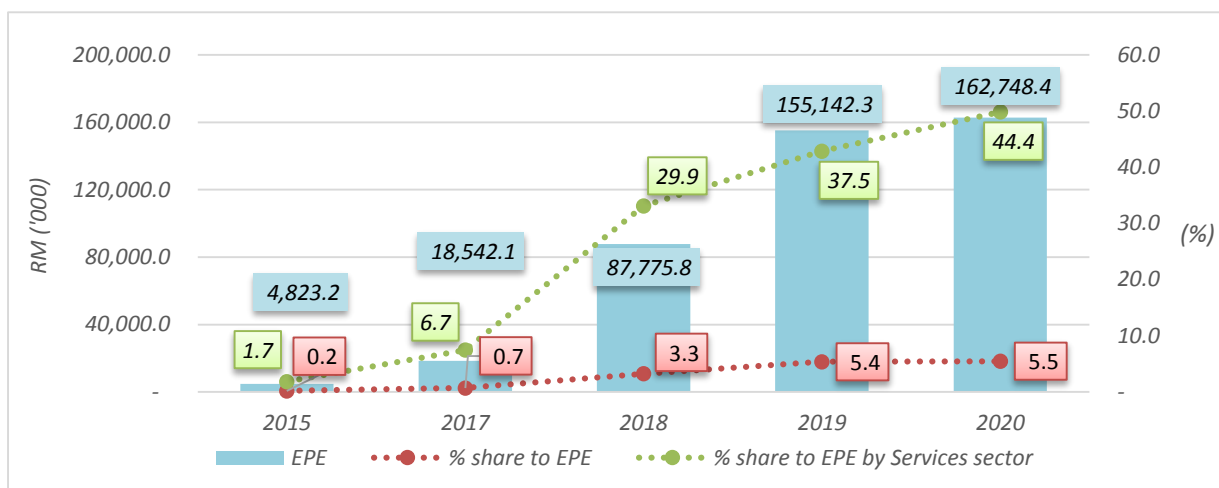


On the other hand, EPE for the waste treatment and disposal activities performed better with an expenditure of RM162.7 million (2019: RM155.1 million), grew by 4.9 per cent. According to the Department of Environment (DoE), a total of 7,185.2 thousand metric tonnes of scheduled waste was generated in 2020, an increase of 79.0 per cent as compared to 4,013.2 thousand metric tonnes reported in 2019<sup>4</sup>. The COVID-19 outbreak in 2020 showed a 20.0 per cent increase in clinical waste from health facilities and government-gazetted COVID-19 quarantine centres, which is categorized as scheduled waste<sup>5</sup>. [Chart 6]

<sup>4</sup> Compendium of Environment Statistics, 2021

<sup>5</sup> <https://www.astroawani.com/berita-malaysia/sisa-klinikal-negara-meningkat-20-peratus-sejak-covid19-melanda-266542>

**Chart 6: EPE by waste treatment and disposal activities, 2015-2020**



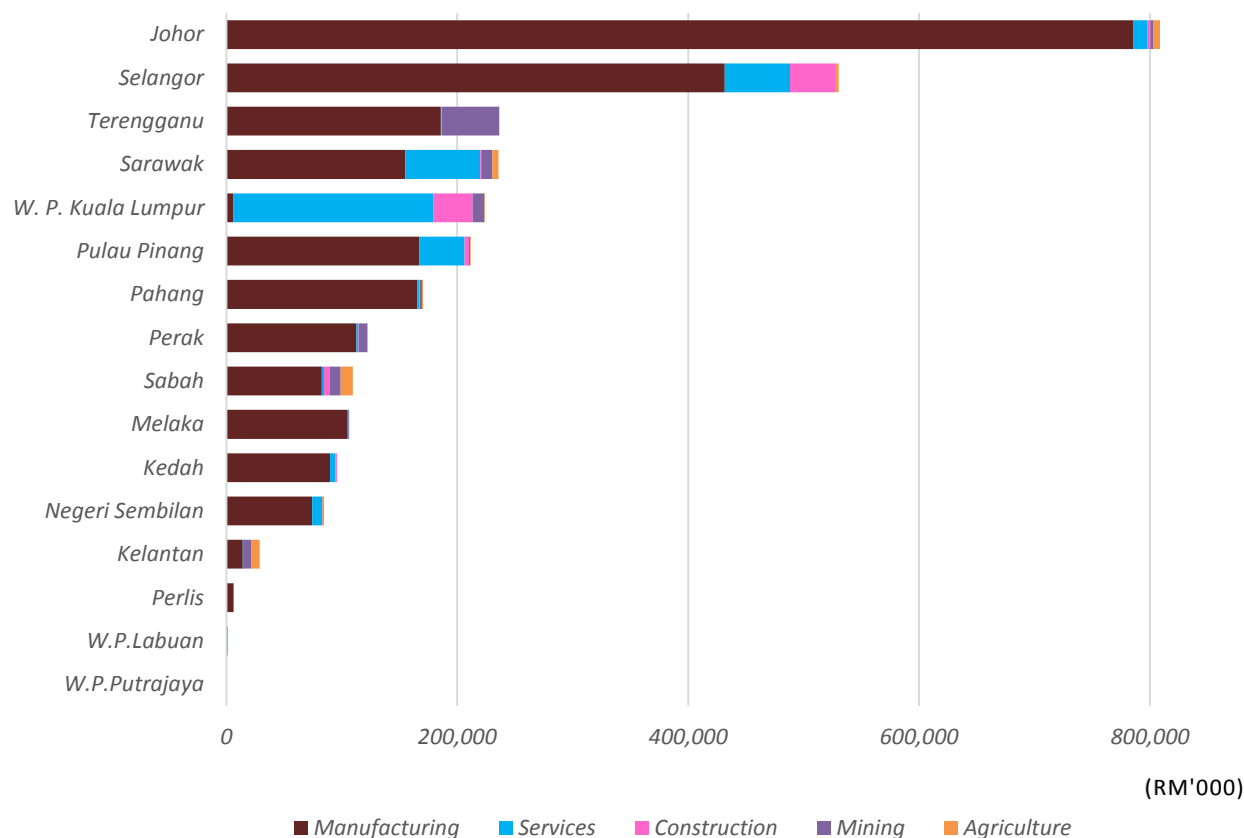
### EPE PERFORMANCE BY STATE

Johor was the largest contributor to Malaysia’s EPE with a contribution of 27.2 per cent (2019: 23.5%), followed by Selangor with 17.8 per cent (2019: 18.8%) whereby the EPE for both states was dominated by the Manufacturing sector. The highest expenditure recorded in Johor was in the manufacturing of refined petroleum products with a contribution of 42.4 per cent to the Manufacturing sector in Johor. Selangor, on the other hand, recorded glove manufacturing activities as the main contributor with a contribution of 29.3 per cent to the Manufacturing sector in Selangor. Meanwhile, Terengganu improved its ranking to the third place as compared to eighth place in 2019 due to the spike in capital expenditure in manufacture of inorganic compounds, manufacture of crude palm oil and manufacture of basic organic chemicals subsectors. **[Table 2]**  
**[Chart 7]**

Table 2: EPE by State, 2019 and 2020

State	EPE (RM '000)		Annual Growth rate (%)	Share (%)		Rank	
	2019	2020		2019	2020	2019	2020
JOHOR	678,474	808,783	19.2	23.5	27.2	1	1
SELANGOR	543,455	530,436	(2.4)	18.8	17.8	2	2
TERENGGANU	126,597	236,448	86.8	4.4	8.0	8	3
SARAWAK	251,732	235,613	(6.4)	8.7	7.9	4	4
W. P. KUALA LUMPUR	292,570	223,988	(23.4)	10.1	7.5	3	5
PULAU PINANG	177,632	211,486	19.1	6.2	7.1	6	6
PAHANG	155,698	170,315	9.4	5.4	5.7	7	7
PERAK	93,303	122,630	31.4	3.2	4.1	10	8
SABAH	249,863	109,520	(56.2)	8.7	3.7	5	9
MELAKA	83,447	106,161	27.2	2.9	3.6	12	10
KEDAH	113,265	95,790	(15.4)	3.9	3.2	9	11
NEGERI SEMBILAN	91,805	84,634	(7.8)	3.2	2.8	11	12
KELANTAN	10,650	28,912	303.5	0.4	1.0	14	13
PERLIS	15,392	6,258	(59.3)	0.5	0.2	13	14
W.P.LABUAN	1,144	1,366	19.4	0.0	0.1	15	15
W.P.PUTRAJAYA	232	462	99.0	0.0	0.0	16	16

Chart 7: EPE by state, 2020



### **CONCLUSION**

*In a nutshell, the commitment of industry players towards environmental sustainability needs to be given clear attention as the interaction between industry players and the environment is a reflection of sustainable economic development. According to Twelfth Malaysia Plan (12MP), one of the challenges faced during the implementation of the 11<sup>th</sup> Malaysia Plan is the unsustainable consumption and production practices where most economic sectors in Malaysia practice a linear economy that is less efficient in the use of resources and consequently produces high amounts of waste. These unsustainable consumption and production practices affect the environment and economic resilience in the long run and require high cleaning and mitigation costs. The Malaysian Government remains committed to ensuring better earth health and quality of life, enhancing national resilience as well as conserving and protecting the environment for present and future generations through a clean, green and resilient development agenda through a nationwide approach.*

### **DISCLAIMER**

*The views expressed in this article are those of the authors and do not represent the views of DOSM.*

### **ACKNOWLEDGEMENT**

*The author would like to thank Mrs. Nazaria Baharudin for her contribution in preparing this article.*

Jadual

*Tables*

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# Siri Masa Perbelanjaan Perlindungan Alam Sekitar

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*Time Series on Environmental  
Protection Expenditure*

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Jadual 1: Perbelanjaan perlindungan alam sekitar mengikut sektor, 2015-2020

Table 1: Environmental protection expenditure by sector, 2015-2020

Sektor Sector	2015		2017		2018		2019		2020	
	(RM'000)	%	(RM'000)	%	(RM'000)	%	(RM'000)	%	(RM'000)	%
<b>Jumlah</b> <i>Total</i>	<b>2,551,326</b>	<b>100.0</b>	<b>2,592,648</b>	<b>100.0</b>	<b>2,695,687</b>	<b>100.0</b>	<b>2,885,259</b>	<b>100.0</b>	<b>2,972,801</b>	<b>100.0</b>
<b>Pertanian, perhutanan &amp; perikanan</b> <i>Agriculture, forestry &amp; fishing</i>	46,423	1.8	45,473	1.8	45,518	1.7	32,671	1.1	34,917	1.2
<b>Perombongan &amp; pengkuarian</b> <i>Mining &amp; quarrying</i>	176,509	6.9	313,213	12.1	305,462	11.3	96,310	3.3	100,421	3.4
<b>Pembuatan</b> <i>Manufacturing</i>	1,876,599	73.6	1,734,920	66.9	1,820,762	67.5	2,181,290	75.6	2,382,378	80.1
<b>Pembinaan</b> <i>Construction</i>	162,459	6.4	223,992	8.6	230,037	8.5	161,183	5.6	88,366	3.0
<b>Perkhidmatan</b> <i>Services</i>	289,337	11.3	275,050	10.6	293,907	10.9	413,806	14.3	366,720	12.3
<b>Bekalan elektrik, gas, wap &amp; pendingin udara</b> <i>Electricity, gas, steam &amp; air conditioning supply</i>	41,379	1.6	41,738	1.6	18,287	0.7	24,684	0.9	18,685	0.6
<b>Bekalan air; pembetulan, pengurusan sisa &amp; aktiviti pemulihan</b> <i>Water supply; sewerage, waste management &amp; remediation activities</i>	125,512	4.9	81,030	3.1	157,620	5.8	184,240	6.4	195,111	6.6
<b>Pengangkutan &amp; penyimpanan</b> <i>Transportation &amp; storage</i>	27,505	1.1	77,594	3.0	88,816	3.3	117,238	4.1	88,525	3.0
<b>Lain-lain perkhidmatan</b> <i>Other services</i>	94,941	3.7	74,688	2.9	29,184	1.1	87,645	3.0	64,399	2.2

Jadual 1.1: Perbelanjaan modal perlindungan alam sekitar mengikut sektor, 2015-2020

Table 1.1: Capital expenditure on environmental protection by sector, 2015-2020

Sektor Sector	2015		2017		2018		2019		2020	
	(RM'000)	%	(RM'000)	%	(RM'000)	%	(RM'000)	%	(RM'000)	%
<b>Jumlah</b> <i>Total</i>	<b>803,405</b>	<b>100.0</b>	<b>717,275</b>	<b>100.0</b>	<b>726,945</b>	<b>100.0</b>	<b>858,134</b>	<b>100.0</b>	<b>761,421</b>	<b>100.0</b>
<b>Pertanian, perhutanan &amp; perikanan</b> <i>Agriculture, forestry &amp; fishing</i>	5,595	0.7	5,122	0.7	7,790	1.1	3,794	0.4	11,428	1.5
<b>Perlombongan &amp; pengkuarian</b> <i>Mining &amp; quarrying</i>	11,465	1.4	28,814	4.0	31,023	4.3	3,554	0.4	10,902	1.4
<b>Pembuatan</b> <i>Manufacturing</i>	691,618	86.1	539,690	75.2	551,430	75.9	638,683	74.4	610,804	80.2
<b>Pembinaan</b> <i>Construction</i>	40,991	5.1	98,605	13.7	87,621	12.1	30,301	3.5	24,374	3.2
<b>Perkhidmatan</b> <i>Services</i>	53,736	6.7	45,045	6.3	49,080	6.8	181,802	21.2	103,913	13.6
<b>Bekalan elektrik, gas, wap &amp; pendingin udara</b> <i>Electricity, gas, steam &amp; air conditioning supply</i>	3,369	0.4	1,770	0.2	1,597	0.2	5,672	0.7	4,278	0.6
<b>Bekalan air; pembetulan, pengurusan sisa &amp; aktiviti pemulihan</b> <i>Water supply; sewerage, waste management &amp; remediation activities</i>	12,375	1.5	6,229	0.9	30,473	4.2	62,966	7.3	27,672	3.6
<b>Pengangkutan &amp; penyimpanan</b> <i>Transportation &amp; storage</i>	7,237	0.9	31,726	4.4	15,899	2.2	67,090	7.8	50,718	6.7
<b>Lain-lain perkhidmatan</b> <i>Other services</i>	30,756	3.8	5,320	0.7	1,111	0.2	46,075	5.4	21,245	2.8

Jadual 1.2: Perbelanjaan operasi perlindungan alam sekitar mengikut sektor, 2015-2020

Table 1.2: Operating expenditure on environmental protection by sector, 2015-2020

Sektor Sector	2015		2017		2018		2019		2020	
	(RM'000)	%	(RM'000)	%	(RM'000)	%	(RM'000)	%	(RM'000)	%
<b>Jumlah</b> <i>Total</i>	<b>1,747,921</b>	<b>100.0</b>	<b>1,875,373</b>	<b>100.0</b>	<b>1,968,742</b>	<b>100.0</b>	<b>2,027,125</b>	<b>100.0</b>	<b>2,211,380</b>	<b>100.0</b>
<b>Pertanian, perhutanan &amp; perikanan</b> <i>Agriculture, forestry &amp; fishing</i>	<b>40,828</b>	<b>2.3</b>	<b>40,351</b>	<b>2.2</b>	<b>37,729</b>	<b>1.9</b>	<b>28,876</b>	<b>1.4</b>	<b>23,489</b>	<b>1.1</b>
<b>Perlombongan &amp; pengkuarian</b> <i>Mining &amp; quarrying</i>	<b>165,044</b>	<b>9.4</b>	<b>284,399</b>	<b>15.2</b>	<b>274,439</b>	<b>13.9</b>	<b>92,756</b>	<b>4.6</b>	<b>89,519</b>	<b>4.0</b>
<b>Pembuatan</b> <i>Manufacturing</i>	<b>1,184,980</b>	<b>67.8</b>	<b>1,195,230</b>	<b>63.7</b>	<b>1,269,332</b>	<b>64.5</b>	<b>1,542,607</b>	<b>76.1</b>	<b>1,771,574</b>	<b>80.1</b>
<b>Pembinaan</b> <i>Construction</i>	<b>121,468</b>	<b>6.9</b>	<b>125,388</b>	<b>6.7</b>	<b>142,416</b>	<b>7.2</b>	<b>130,882</b>	<b>6.5</b>	<b>63,992</b>	<b>2.9</b>
<b>Perkhidmatan</b> <i>Services</i>	<b>235,601</b>	<b>13.5</b>	<b>230,005</b>	<b>12.3</b>	<b>244,827</b>	<b>12.4</b>	<b>232,004</b>	<b>11.4</b>	<b>262,807</b>	<b>11.9</b>
<b>Bekalan elektrik, gas, wap &amp; pendingin udara</b> <i>Electricity, gas, steam &amp; air conditioning supply</i>	38,010	2.2	39,968	2.1	16,690	0.8	19,012	0.9	14,407	0.7
<b>Bekalan air; pembetulan, pengurusan sisa &amp; aktiviti pemulihan</b> <i>Water supply; sewerage, waste management &amp; remediation activities</i>	113,138	6.5	74,801	4.0	127,147	6.5	121,274	6.0	167,438	7.6
<b>Pengangkutan &amp; penyimpanan</b> <i>Transportation &amp; storage</i>	20,268	1.2	45,867	2.4	72,917	3.7	50,148	2.5	37,807	1.7
<b>Lain-lain perkhidmatan</b> <i>Other services</i>	64,185	3.7	69,369	3.7	28,073	1.4	41,570	2.1	43,154	2.0

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Statistik Perbelanjaan  
Perlindungan Alam Sekitar  
Mengikut Negeri

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*Statistics on Environmental  
Protection Expenditure  
by State*

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**Jadual 2: Perbelanjaan perlindungan alam sekitar mengikut negeri dan jenis perbelanjaan, 2020**

*Table 2: Environmental protection expenditure by state and type of expenditure, 2020*

Negeri <i>States</i>	Jumlah <i>Total</i>		Pengurusan pencemaran <i>Pollution management</i>	Perlindungan hidupan liar & habitat <i>Protection of wildlife &amp; habitat</i>	Penilaian dan caj alam sekitar <i>Environmental assessment and charges</i>	Pengurusan sisa Waste management	Perbelanjaan lain untuk perlindungan alam sekitar <i>Other environmental protection expenditure</i>
	(RM'000)	%	(RM'000)	(RM'000)	(RM'000)	(RM'000)	(RM'000)
<b>Jumlah <i>Total</i></b>	<b>2,972,801</b>	<b>100.0</b>	<b>2,103,668</b>	<b>18,005</b>	<b>67,187</b>	<b>766,765</b>	<b>17,176</b>
<b>%</b>	<b>100.0</b>		<b>70.8</b>	<b>0.6</b>	<b>2.3</b>	<b>25.8</b>	<b>0.6</b>
<b>Johor</b>	808,783	<b>27.2</b>	636,030	3,011	7,862	159,478	2,402
<b>Kedah</b>	95,790	<b>3.2</b>	61,017	164	857	33,558	194
<b>Kelantan</b>	28,912	<b>1.0</b>	12,400	6,310	1,711	8,400	91
<b>Melaka</b>	106,161	<b>3.6</b>	85,347	3	887	19,661	264
<b>Negeri Sembilan</b>	84,634	<b>2.8</b>	57,933	551	3,290	22,066	794
<b>Pahang</b>	170,315	<b>5.7</b>	155,927	77	1,463	12,148	700
<b>Pulau Pinang</b>	211,486	<b>7.1</b>	113,914	10	3,850	91,971	1,740
<b>Perak</b>	122,630	<b>4.1</b>	88,600	877	3,451	28,551	1,150
<b>Perlis</b>	6,258	<b>0.2</b>	4,916	-	34	1,304	4
<b>Selangor</b>	530,436	<b>17.8</b>	322,866	18	12,244	192,452	2,858
<b>Terengganu</b>	236,448	<b>8.0</b>	211,445	52	2,519	22,070	363
<b>Sabah</b>	109,520	<b>3.7</b>	74,430	4,173	7,969	19,961	2,987
<b>Sarawak</b>	235,613	<b>7.9</b>	138,970	815	9,068	85,902	858
<b>W.P. Kuala Lumpur</b>	223,988	<b>7.5</b>	139,231	1,945	11,914	68,125	2,772
<b>W.P. Labuan</b>	1,366	<b>0.0</b>	423	-	30	912	-
<b>W.P. Putrajaya</b>	462	<b>0.0</b>	220	-	38	205	-

Jadual 2.1: Perbelanjaan modal perlindungan alam sekitar mengikut negeri dan jenis perbelanjaan, 2020

Table 2.1: Capital expenditure on environmental protection by state and type of expenditure, 2020

Negeri States	Jumlah Total		Pengurusan pencemaran Pollution management	Perlindungan hidupan liar & habitat Protection of wildlife & habitat	Penilaian dan caj alam sekitar Environmental assessment and charges	Pengurusan sisa Waste management	Perbelanjaan lain untuk perlindungan alam sekitar Other environmental protection expenditure
	(RM'000)	%	(RM'000)	(RM'000)	(RM'000)	(RM'000)	(RM'000)
<b>Jumlah Total</b>	<b>761,421</b>	<b>100.0</b>	<b>716,239</b>	<b>9,906</b>	<b>14,850</b>	<b>18,702</b>	<b>1,724</b>
<b>%</b>	<b>100.0</b>		<b>94.1</b>	<b>1.3</b>	<b>2.0</b>	<b>2.5</b>	<b>0.2</b>
<b>Johor</b>	179,231	<b>23.5</b>	168,219	2,752	1,350	6,782	128
<b>Kedah</b>	18,371	<b>2.4</b>	16,366	63	56	1,884	1
<b>Kelantan</b>	8,342	<b>1.1</b>	2,030	6,237	13	14	48
<b>Melaka</b>	48,840	<b>6.4</b>	46,044	-	72	2,684	40
<b>Negeri Sembilan</b>	10,123	<b>1.3</b>	8,956	267	157	578	165
<b>Pahang</b>	23,885	<b>3.1</b>	22,575	33	335	747	195
<b>Pulau Pinang</b>	44,019	<b>5.8</b>	42,681	-	745	568	25
<b>Perak</b>	32,821	<b>4.3</b>	30,993	201	226	1,279	122
<b>Perlis</b>	820	<b>0.1</b>	815	-	-	5	-
<b>Selangor</b>	79,742	<b>10.5</b>	77,237	-	570	1,104	830
<b>Terengganu</b>	101,039	<b>13.3</b>	100,258	-	109	664	8
<b>Sabah</b>	29,379	<b>3.9</b>	26,863	104	1,105	1,283	24
<b>Sarawak</b>	77,870	<b>10.2</b>	71,420	13	5,435	879	122
<b>W.P. Kuala Lumpur</b>	106,827	<b>14.0</b>	101,669	235	4,676	229	18
<b>W.P. Labuan</b>	113	<b>0.0</b>	113	-	-	-	-
<b>W.P. Putrajaya</b>	-	<b>0.0</b>	-	-	-	-	-



Jadual 2.2: Perbelanjaan operasi perlindungan alam sekitar mengikut negeri dan jenis perbelanjaan, 2020

Table 2.2: Operating expenditure on environmental protection by state and type of expenditure, 2020

Negeri States	Jumlah Total		Pengurusan pencemaran Pollution management	Perlindungan hidupan liar & habitat Protection of wildlife & habitat	Penilaian dan caj alam sekitar Environmental assessment and charges	Pengurusan sisa Waste management	Perbelanjaan lain untuk perlindungan alam sekitar Other environmental protection expenditure
	(RM'000)	%	(RM'000)	(RM'000)	(RM'000)	(RM'000)	(RM'000)
<b>Jumlah Total</b>	<b>2,211,380</b>	<b>100.0</b>	<b>1,387,429</b>	<b>8,099</b>	<b>52,337</b>	<b>748,063</b>	<b>15,452</b>
<b>%</b>	<b>100.0</b>		<b>62.7</b>	<b>0.4</b>	<b>2.4</b>	<b>33.8</b>	<b>0.7</b>
<b>Johor</b>	629,551	<b>28.5</b>	467,811	259	6,512	152,696	2,274
<b>Kedah</b>	77,419	<b>3.5</b>	44,651	100	801	31,674	193
<b>Kelantan</b>	20,571	<b>0.9</b>	10,370	73	1,698	8,387	43
<b>Melaka</b>	57,322	<b>2.6</b>	39,302	3	815	16,977	224
<b>Negeri Sembilan</b>	74,511	<b>3.4</b>	48,977	284	3,133	21,487	629
<b>Pahang</b>	146,430	<b>6.6</b>	133,351	44	1,128	11,401	505
<b>Pulau Pinang</b>	167,466	<b>7.6</b>	71,233	10	3,105	91,403	1,716
<b>Perak</b>	89,809	<b>4.1</b>	57,607	676	3,225	27,272	1,028
<b>Perlis</b>	5,438	<b>0.2</b>	4,101	-	34	1,299	4
<b>Selangor</b>	450,695	<b>20.4</b>	245,628	18	11,674	191,347	2,028
<b>Terengganu</b>	135,409	<b>6.1</b>	111,187	52	2,409	21,405	355
<b>Sabah</b>	80,141	<b>3.6</b>	47,567	4,069	6,864	18,678	2,963
<b>Sarawak</b>	157,743	<b>7.1</b>	67,549	802	3,633	85,023	736
<b>W.P. Kuala Lumpur</b>	117,161	<b>5.3</b>	37,562	1,710	7,238	67,896	2,755
<b>W.P. Labuan</b>	1,253	<b>0.1</b>	310	-	30	912	-
<b>W.P. Putrajaya</b>	462	<b>0.0</b>	220	-	38	205	-

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# Statistik Jumlah Perbelanjaan Perlindungan Alam Sekitar

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*Statistics on Total Environmental  
Protection Expenditure*

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**Jadual 3: Perbelanjaan perlindungan alam sekitar mengikut sektor dan jenis perbelanjaan, 2020**

*Table 3: Environmental protection expenditure by sector and type of expenditure, 2020*

Sektor <i>Sector</i>	Jumlah <i>Total</i>		Pengurusan pencemaran <i>Pollution management</i>	Perlindungan hidupan liar & habitat <i>Protection of wildlife &amp; habitat</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>
	(RM'000)	%	(RM'000)	(RM'000)	(RM'000)	(RM'000)	(RM'000)
<b>Jumlah</b> <i>Total</i>	<b>2,972,801</b>	<b>100.0</b>	<b>2,103,668</b>	<b>18,005</b>	<b>67,187</b>	<b>766,765</b>	<b>17,176</b>
%	<b>100.0</b>		<b>70.8</b>	<b>0.6</b>	<b>2.3</b>	<b>25.8</b>	<b>0.6</b>
<b>Pertanian, perhutanan &amp; perikanan</b> <i>Agriculture, forestry &amp; fishing</i>	<b>34,917</b>	<b>1.2</b>	<b>10,170</b>	<b>9,338</b>	<b>7,055</b>	<b>6,967</b>	<b>1,387</b>
<b>Perlombongan &amp; pengkuarian</b> <i>Mining &amp; quarrying</i>	<b>100,421</b>	<b>3.4</b>	<b>77,338</b>	<b>3,047</b>	<b>3,130</b>	<b>16,409</b>	<b>496</b>
<b>Pembuatan</b> <i>Manufacturing</i>	<b>2,382,378</b>	<b>80.1</b>	<b>1,802,257</b>	<b>3,128</b>	<b>34,266</b>	<b>532,087</b>	<b>10,639</b>
<b>Pembinaan</b> <i>Construction</i>	<b>88,366</b>	<b>3.0</b>	<b>64,808</b>	<b>44</b>	<b>7,347</b>	<b>15,859</b>	<b>308</b>
<b>Perkhidmatan</b> <i>Services</i>	<b>366,720</b>	<b>12.3</b>	<b>149,094</b>	<b>2,449</b>	<b>15,389</b>	<b>195,442</b>	<b>4,346</b>
<b>Bekalan elektrik, gas, wap &amp; pendingin udara</b> <i>Electricity, gas, steam &amp; air conditioning supply</i>	18,685	0.6	12,269	1,551	320	4,382	163
<b>Bekalan air; pembetulan, pengurusan sisa &amp; aktiviti pemulihan</b> <i>Water supply; sewerage, waste management &amp; remediation activities</i>	195,111	6.6	43,411	10	5,275	144,208	2,206
<b>Pengangkutan &amp; penyimpanan</b> <i>Transportation &amp; storage</i>	88,525	3.0	70,063	153	4,273	12,720	1,316
<b>Lain-lain perkhidmatan</b> <i>Other services</i>	64,399	2.2	23,351	734	5,520	34,133	660

Jadual 3.1: Perbelanjaan modal perlindungan alam sekitar mengikut sektor dan jenis perbelanjaan, 2020

Table 3.1: Capital expenditure on environmental protection by sector and type of expenditure, 2020

Sektor <i>Sector</i>	Jumlah <i>Total</i>		Pengurusan pencemaran <i>Pollution management</i>	Perlindungan hidupan liar & habitat <i>Protection of wildlife &amp; habitat</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>
	(RM'000)	%	(RM'000)	(RM'000)	(RM'000)	(RM'000)	(RM'000)
<b>Jumlah</b> <i>Total</i>	<b>761,421</b>	<b>100.0</b>	<b>716,239</b>	<b>9,906</b>	<b>14,850</b>	<b>18,702</b>	<b>1,724</b>
%	<b>100.0</b>		<b>94.1</b>	<b>1.3</b>	<b>2.0</b>	<b>2.5</b>	<b>0.2</b>
<b>Pertanian, perhutanan &amp; perikanan</b> <i>Agriculture, forestry &amp; fishing</i>	<b>11,428</b>	<b>1.5</b>	<b>4,264</b>	<b>6,549</b>	<b>405</b>	<b>98</b>	<b>113</b>
<b>Perlombongan &amp; pengkuarian</b> <i>Mining &amp; quarrying</i>	<b>10,902</b>	<b>1.4</b>	<b>7,979</b>	<b>2,658</b>	<b>188</b>	<b>38</b>	<b>39</b>
<b>Pembuatan</b> <i>Manufacturing</i>	<b>610,804</b>	<b>80.2</b>	<b>584,595</b>	<b>245</b>	<b>7,440</b>	<b>17,007</b>	<b>1,517</b>
<b>Pembinaan</b> <i>Construction</i>	<b>24,374</b>	<b>3.2</b>	<b>22,752</b>	<b>-</b>	<b>1,093</b>	<b>494</b>	<b>36</b>
<b>Perkhidmatan</b> <i>Services</i>	<b>103,913</b>	<b>13.6</b>	<b>96,650</b>	<b>454</b>	<b>5,725</b>	<b>1,065</b>	<b>19</b>
<b>Bekalan elektrik, gas, wap &amp; pendingin udara</b> <i>Electricity, gas, steam &amp; air conditioning supply</i>	<b>4,278</b>	<b>0.6</b>	<b>3,976</b>	<b>219</b>	<b>-</b>	<b>83</b>	<b>-</b>
<b>Bekalan air; pembedahan, pengurusan sisa &amp; aktiviti pemulihan</b> <i>Water supply; sewerage, waste management &amp; remediation activities</i>	<b>27,672</b>	<b>3.6</b>	<b>27,213</b>	<b>-</b>	<b>-</b>	<b>459</b>	<b>-</b>
<b>Pengangkutan &amp; penyimpanan</b> <i>Transportation &amp; storage</i>	<b>50,718</b>	<b>6.7</b>	<b>49,295</b>	<b>153</b>	<b>1,068</b>	<b>184</b>	<b>18</b>
<b>Lain-lain perkhidmatan</b> <i>Other services</i>	<b>21,245</b>	<b>2.8</b>	<b>16,166</b>	<b>82</b>	<b>4,657</b>	<b>339</b>	<b>2</b>

Jadual 3.2: Perbelanjaan operasi perlindungan alam sekitar mengikut sektor dan jenis perbelanjaan, 2020

Table 3.2: Operating expenditure on environmental protection by sector and type of expenditure, 2020

Sektor <i>Sector</i>	Jumlah <i>Total</i>		Pengurusan pencemaran <i>Pollution management</i>	Perlindungan hidupan liar & habitat <i>Protection of wildlife &amp; habitat</i>	Penilaian dan caj alam sekitar <i>Environmental assessment and charges</i>	Pengurusan sisa Waste <i>management</i>	Perbelanjaan lain untuk perlindungan alam sekitar <i>Other environmental protection expenditure</i>
	(RM'000)	%	(RM'000)	(RM'000)	(RM'000)	(RM'000)	(RM'000)
<b>Jumlah</b> <i>Total</i>	<b>2,211,380</b>	<b>100.0</b>	<b>1,387,429</b>	<b>8,099</b>	<b>52,337</b>	<b>748,063</b>	<b>15,452</b>
%	<b>100.0</b>		<b>62.7</b>	<b>0.4</b>	<b>2.4</b>	<b>33.8</b>	<b>0.7</b>
<b>Pertanian, perhutanan &amp; perikanan</b> <i>Agriculture, forestry &amp; fishing</i>	<b>23,489</b>	<b>1.1</b>	<b>5,907</b>	<b>2,789</b>	<b>6,650</b>	<b>6,869</b>	<b>1,274</b>
<b>Perlombongan &amp; pengkuarian</b> <i>Mining &amp; quarrying</i>	<b>89,519</b>	<b>4.0</b>	<b>69,360</b>	<b>389</b>	<b>2,943</b>	<b>16,371</b>	<b>457</b>
<b>Pembuatan</b> <i>Manufacturing</i>	<b>1,771,574</b>	<b>80.1</b>	<b>1,217,662</b>	<b>2,884</b>	<b>26,827</b>	<b>515,080</b>	<b>9,122</b>
<b>Pembinaan</b> <i>Construction</i>	<b>63,992</b>	<b>2.9</b>	<b>42,057</b>	<b>44</b>	<b>6,254</b>	<b>15,366</b>	<b>272</b>
<b>Perkhidmatan</b> <i>Services</i>	<b>262,807</b>	<b>11.9</b>	<b>52,444</b>	<b>1,995</b>	<b>9,664</b>	<b>194,377</b>	<b>4,327</b>
<b>Bekalan elektrik, gas, wap &amp; pendingin udara</b> <i>Electricity, gas, steam &amp; air conditioning supply</i>	14,407	0.7	8,293	1,332	320	4,299	163
<b>Bekalan air; pembetulan, pengurusan sisa &amp; aktiviti pemulihan</b> <i>Water supply; sewerage, waste management &amp; remediation activities</i>	167,438	7.6	16,198	10	5,275	143,749	2,206
<b>Pengangkutan &amp; penyimpanan</b> <i>Transportation &amp; storage</i>	37,807	1.7	20,768	-	3,205	12,536	1,298
<b>Lain-lain perkhidmatan</b> <i>Other services</i>	43,154	2.0	7,185	653	863	33,794	659

Jadual 4: Perbelanjaan perlindungan alam sekitar mengikut sektor dan pecahan perbelanjaan, 2020

Table 4: Environmental protection expenditure by sector and share of expenditure, 2020

Sektor Sector	Pecahan perbelanjaan Share of expenditure		Jumlah Total		
		(RM'000)	%	(RM'000)	%
<b>Jumlah Total</b>	<b>Modal/Capital Operasi/Operating</b>	<b>761,421 2,211,380</b>	<b>25.6 74.4</b>	<b>2,972,801</b>	<b>100.0</b>
<b>Pertanian, perhutanan &amp; perikanan Agriculture, forestry &amp; fishing</b>	<b>Modal/Capital Operasi/Operating</b>	<b>11,428 23,489</b>	<b>32.7 67.3</b>	<b>34,917</b>	<b>1.2</b>
<b>Perlombongan &amp; pengkuarian Mining &amp; quarrying</b>	<b>Modal/Capital Operasi/Operating</b>	<b>10,902 89,519</b>	<b>10.9 89.1</b>	<b>100,421</b>	<b>3.4</b>
<b>Pembuatan Manufacturing</b>	<b>Modal/Capital Operasi/Operating</b>	<b>610,804 1,771,574</b>	<b>25.6 74.4</b>	<b>2,382,378</b>	<b>80.1</b>
<b>Pembinaan Construction</b>	<b>Modal/Capital Operasi/Operating</b>	<b>24,374 63,992</b>	<b>27.6 72.4</b>	<b>88,366</b>	<b>3.0</b>
<b>Perkhidmatan Services</b>	<b>Modal/Capital Operasi/Operating</b>	<b>103,913 262,807</b>	<b>28.3 71.7</b>	<b>366,720</b>	<b>12.3</b>
<b>Bekalan elektrik, gas, wap &amp; pendingin udara Electricity, gas, steam &amp; air conditioning supply</b>	<b>Modal/Capital Operasi/Operating</b>	<b>4,278 14,407</b>	<b>22.9 77.1</b>	<b>18,685</b>	<b>0.6</b>
<b>Bekalan air; pembetulan, pengurusan sisa &amp; aktiviti pemulihan Water supply; sewerage, waste management &amp; remediation activities</b>	<b>Modal/Capital Operasi/Operating</b>	<b>27,672 167,438</b>	<b>14.2 85.8</b>	<b>195,111</b>	<b>6.6</b>
<b>Pengangkutan &amp; penyimpanan Transportation &amp; storage</b>	<b>Modal/Capital Operasi/Operating</b>	<b>50,718 37,807</b>	<b>57.3 42.7</b>	<b>88,525</b>	<b>3.0</b>
<b>Lain-lain perkhidmatan Other services</b>	<b>Modal/Capital Operasi/Operating</b>	<b>21,245 43,154</b>	<b>33.0 67.0</b>	<b>64,399</b>	<b>2.2</b>



Statistik Perbelanjaan  
Untuk Pengurusan Pencemaran

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*Statistics on Expenditure  
for Pollution Management*

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Jadual 5: Perbelanjaan untuk pengurusan pencemaran mengikut sektor dan aktiviti, 2020

Table 5: Expenditure for pollution management by sector and activity, 2020

Sektor Sector	Jumlah Total		Pengawasan alam sekitar Environmental monitoring	Tebus guna & pembersihan tapak Site reclamation & decommissioning	Peredaan & kawalan pencemaran Pollution abatment & control	Pencegahan pencemaran Pollution prevention
	(RM'000)	%	(RM'000)	(RM'000)	(RM'000)	(RM'000)
<b>Jumlah</b> Total	<b>2,103,668</b>	<b>100.0</b>	<b>273,566</b>	<b>9,101</b>	<b>1,713,116</b>	<b>107,885</b>
%	<b>100.0</b>		<b>13.0</b>	<b>0.4</b>	<b>81.4</b>	<b>5.1</b>
<b>Pertanian, perhutanan &amp; perikanan</b> <i>Agriculture, forestry &amp; fishing</i>	<b>10,170</b>	<b>0.5</b>	<b>3,807</b>	<b>284</b>	<b>2,651</b>	<b>3,428</b>
<b>Perlombongan &amp; pengkuarian</b> <i>Mining &amp; quarrying</i>	<b>77,338</b>	<b>3.7</b>	<b>13,576</b>	<b>507</b>	<b>59,908</b>	<b>3,347</b>
<b>Pembuatan</b> <i>Manufacturing</i>	<b>1,802,257</b>	<b>85.7</b>	<b>215,125</b>	<b>5,551</b>	<b>1,504,008</b>	<b>77,573</b>
<b>Pembinaan</b> <i>Construction</i>	<b>64,808</b>	<b>3.1</b>	<b>10,183</b>	<b>2,714</b>	<b>44,034</b>	<b>7,878</b>
<b>Perkhidmatan</b> <i>Services</i>	<b>149,094</b>	<b>7.1</b>	<b>30,876</b>	<b>44</b>	<b>102,514</b>	<b>15,660</b>
<b>Bekalan elektrik, gas, wap &amp; pendingin udara</b> <i>Electricity, gas, steam &amp; air conditioning supply</i>	12,269	0.6	2,469	-	5,262	4,538
<b>Bekalan air; pembetulan, pengurusan sisa &amp; aktiviti pemulihan</b> <i>Water supply; sewerage, waste management &amp; remediation activities</i>	43,411	2.1	2,398	-	36,911	4,102
<b>Pengangkutan &amp; penyimpanan</b> <i>Transportation &amp; storage</i>	70,063	3.3	12,905	19	51,980	5,159
<b>Lain-lain perkhidmatan</b> <i>Other services</i>	23,351	1.1	13,104	25	8,361	1,861

Jadual 5.1: Perbelanjaan modal untuk pengurusan pencemaran mengikut sektor dan aktiviti, 2020

Table 5.1: Capital expenditure for pollution management by sector and activity, 2020

Sektor Sector	Jumlah Total		Pengawasan alam sekitar Environmental monitoring	Tebus guna & pembersihan tapak Site reclamation & decommissioning	Peredaan & kawalan pencemaran Pollution abatment & control	Pencegahan pencemaran Pollution prevention
	(RM'000)	%	(RM'000)	(RM'000)	(RM'000)	(RM'000)
<b>Jumlah</b> Total	<b>716,239</b>	<b>100.0</b>	<b>82,859</b>	<b>908</b>	<b>591,405</b>	<b>41,067</b>
%	<b>100.0</b>		<b>11.6</b>	<b>0.1</b>	<b>82.6</b>	<b>5.7</b>
<b>Pertanian, perhutanan &amp; perikanan</b> <i>Agriculture, forestry &amp; fishing</i>	<b>4,264</b>	<b>0.6</b>	<b>728</b>	<b>114</b>	<b>737</b>	<b>2,685</b>
<b>Perlombongan &amp; pengkuarian</b> <i>Mining &amp; quarrying</i>	<b>7,979</b>	<b>1.1</b>	<b>2,190</b>	<b>35</b>	<b>4,311</b>	<b>1,442</b>
<b>Pembuatan</b> <i>Manufacturing</i>	<b>584,595</b>	<b>81.6</b>	<b>66,675</b>	<b>440</b>	<b>488,611</b>	<b>28,868</b>
<b>Pembinaan</b> <i>Construction</i>	<b>22,752</b>	<b>3.2</b>	<b>1,485</b>	<b>318</b>	<b>19,207</b>	<b>1,741</b>
<b>Perkhidmatan</b> <i>Services</i>	<b>96,650</b>	<b>13.5</b>	<b>11,781</b>	<b>-</b>	<b>78,538</b>	<b>6,331</b>
<b>Bekalan elektrik, gas, wap &amp; pendingin udara</b> <i>Electricity, gas, steam &amp; air conditioning supply</i>	3,976	0.6	109	-	3,215	653
<b>Bekalan air; pembedungan, pengurusan sisa &amp; aktiviti pemulihan</b> <i>Water supply; sewerage, waste management &amp; remediation activities</i>	27,213	3.8	6	-	23,119	4,088
<b>Pengangkutan &amp; penyimpanan</b> <i>Transportation &amp; storage</i>	49,295	6.9	19	-	47,930	1,346
<b>Lain-lain perkhidmatan</b> <i>Other services</i>	16,166	2.3	11,648	-	4,275	243

Jadual 5.2: Perbelanjaan operasi untuk pengurusan pencemaran mengikut sektor dan aktiviti, 2020

Table 5.2: Operating expenditure for pollution management by sector and activity, 2020

Sektor Sector	Jumlah Total		Pengawasan alam sekitar Environmental monitoring	Tebus guna & pembersihan tapak Site reclamation & decommissioning	Peredaan & kawalan pencemaran Pollution abatement & control	Pencegahan pencemaran Pollution prevention
	(RM'000)	%	(RM'000)	(RM'000)	(RM'000)	(RM'000)
<b>Jumlah</b> Total	<b>1,387,429</b>	<b>100.0</b>	<b>190,707</b>	<b>8,193</b>	<b>1,121,711</b>	<b>66,818</b>
%	<b>100.0</b>		<b>13.7</b>	<b>0.6</b>	<b>80.8</b>	<b>4.8</b>
<b>Pertanian, perhutanan &amp; perikanan</b> <i>Agriculture, forestry &amp; fishing</i>	<b>5,907</b>	<b>0.4</b>	<b>3,079</b>	<b>170</b>	<b>1,915</b>	<b>743</b>
<b>Perlombongan &amp; pengkuarian</b> <i>Mining &amp; quarrying</i>	<b>69,360</b>	<b>5.0</b>	<b>11,386</b>	<b>472</b>	<b>55,597</b>	<b>1,905</b>
<b>Pembuatan</b> <i>Manufacturing</i>	<b>1,217,662</b>	<b>87.8</b>	<b>148,450</b>	<b>5,111</b>	<b>1,015,396</b>	<b>48,705</b>
<b>Pembinaan</b> <i>Construction</i>	<b>42,057</b>	<b>3.0</b>	<b>8,697</b>	<b>2,396</b>	<b>24,827</b>	<b>6,136</b>
<b>Perkhidmatan</b> <i>Services</i>	<b>52,444</b>	<b>3.8</b>	<b>19,094</b>	<b>44</b>	<b>23,976</b>	<b>9,329</b>
<b>Bekalan elektrik, gas, wap &amp; pendingin udara</b> <i>Electricity, gas, steam &amp; air conditioning supply</i>	8,293	0.6	2,360	-	2,048	3,885
<b>Bekalan air; pemptungan, pengurusan sisa &amp; aktiviti pemulihan</b> <i>Water supply; sewerage, waste management &amp; remediation activities</i>	16,198	1.2	2,391	-	13,792	14
<b>Pengangkutan &amp; penyimpanan</b> <i>Transportation &amp; storage</i>	20,768	1.5	12,886	19	4,050	3,812
<b>Lain-lain perkhidmatan</b> <i>Other services</i>	7,185	0.5	1,457	25	4,086	1,618

**Jadual 6: Perbelanjaan untuk pengurusan pencemaran mengikut sektor dan jenis media, 2020**

*Table 6: Expenditure for pollution management by sector and type of media, 2020*

Sektor <i>Sector</i>	Jumlah <i>Total</i>		Media			
	(RM'000)	%	Udara <i>Air</i>	Air permukaan <i>Surface water</i>	Air bawah tanah <i>Groundwater</i>	Bunyi bising <i>Noise</i>
			(RM'000)	(RM'000)	(RM'000)	(RM'000)
<b>Jumlah</b> <i>Total</i>	<b>2,103,668</b>	<b>100.0</b>	<b>643,997</b>	<b>1,400,223</b>	<b>22,613</b>	<b>36,835</b>
%	100.0		30.6	66.6	1.1	1.8
<b>Pertanian, perhutanan &amp; perikanan</b> <i>Agriculture, forestry &amp; fishing</i>	<b>10,170</b>	<b>0.5</b>	<b>4,796</b>	<b>4,213</b>	<b>757</b>	<b>404</b>
<b>Perlombongan &amp; pengkuarian</b> <i>Mining &amp; quarrying</i>	<b>77,338</b>	<b>3.7</b>	<b>19,983</b>	<b>54,747</b>	<b>1,399</b>	<b>1,209</b>
<b>Pembuatan</b> <i>Manufacturing</i>	<b>1,802,257</b>	<b>85.7</b>	<b>576,326</b>	<b>1,199,701</b>	<b>8,338</b>	<b>17,891</b>
<b>Pembinaan</b> <i>Construction</i>	<b>64,808</b>	<b>3.1</b>	<b>16,199</b>	<b>32,148</b>	<b>444</b>	<b>16,017</b>
<b>Perkhidmatan</b> <i>Services</i>	<b>149,094</b>	<b>7.1</b>	<b>26,693</b>	<b>109,414</b>	<b>11,674</b>	<b>1,313</b>
<b>Bekalan elektrik, gas, wap &amp; pendingin udara</b> <i>Electricity, gas, steam &amp; air conditioning supply</i>	12,269	0.6	4,799	6,967	200	303
<b>Bekalan air; pembetulan, pengurusan sisa &amp; aktiviti pemulihan</b> <i>Water supply; sewerage, waste management &amp; remediation activities</i>	43,411	2.1	6,151	36,998	140	123
<b>Pengangkutan &amp; penyimpanan</b> <i>Transportation &amp; storage</i>	70,063	3.3	9,644	48,622	11,302	496
<b>Lain-lain perkhidmatan</b> <i>Other services</i>	23,351	1.1	6,100	16,827	32	391

**Jadual 6.1: Perbelanjaan modal untuk pengurusan pencemaran mengikut sektor dan jenis media, 2020**

*Table 6.1: Capital expenditure for pollution management by sector and type of media, 2020*

Sektor Sector	Jumlah Total		Media			
			Udara Air	Air permukaan Surface water	Air bawah tanah Groundwater	Bunyi bising Noise
	(RM'000)	%	(RM'000)	(RM'000)	(RM'000)	(RM'000)
<b>Jumlah</b> Total	<b>716,239</b>	<b>100.0</b>	<b>298,224</b>	<b>406,026</b>	<b>336</b>	<b>11,653</b>
%	<b>100.0</b>		<b>41.6</b>	<b>56.7</b>	<b>0.0</b>	<b>1.6</b>
<b>Pertanian, perhutanan &amp; perikanan</b> <i>Agriculture, forestry &amp; fishing</i>	<b>4,264</b>	<b>0.6</b>	<b>3,325</b>	<b>724</b>	<b>156</b>	<b>59</b>
<b>Perlombongan &amp; pengkuarian</b> <i>Mining &amp; quarrying</i>	<b>7,979</b>	<b>1.1</b>	<b>3,677</b>	<b>4,257</b>	<b>6</b>	<b>39</b>
<b>Pembuatan</b> <i>Manufacturing</i>	<b>584,595</b>	<b>81.6</b>	<b>276,358</b>	<b>301,832</b>	<b>169</b>	<b>6,236</b>
<b>Pembinaan</b> <i>Construction</i>	<b>22,752</b>	<b>3.2</b>	<b>1,869</b>	<b>15,857</b>	<b>3</b>	<b>5,022</b>
<b>Perkhidmatan</b> <i>Services</i>	<b>96,650</b>	<b>13.5</b>	<b>12,995</b>	<b>83,355</b>	<b>2</b>	<b>298</b>
<b>Bekalan elektrik, gas, wap &amp; pendingin udara</b> <i>Electricity, gas, steam &amp; air conditioning supply</i>	3,976	0.6	1,776	2,164	-	36
<b>Bekalan air; pembetulan, pengurusan sisa &amp; aktiviti pemulihan</b> <i>Water supply; sewerage, waste management &amp; remediation activities</i>	27,213	3.8	4,122	23,091	-	-
<b>Pengangkutan &amp; penyimpanan</b> <i>Transportation &amp; storage</i>	49,295	6.9	3,447	45,650	-	198
<b>Lain-lain perkhidmatan</b> <i>Other services</i>	16,166	2.3	3,650	12,451	2	64

Jadual 6.2: Perbelanjaan operasi untuk pengurusan pencemaran mengikut sektor dan jenis media, 2020

Table 6.2: Operating expenditure for pollution management by sector and type of media, 2020

Sektor <i>Sector</i>	Jumlah <i>Total</i>		Media			
	(RM'000)	%	Udara <i>Air</i>	Air permukaan <i>Surface water</i>	Air bawah tanah <i>Groundwater</i>	Bunyi bisung <i>Noise</i>
			(RM'000)	(RM'000)	(RM'000)	(RM'000)
<b>Jumlah</b> <i>Total</i>	<b>1,387,429</b>	<b>100.0</b>	<b>345,773</b>	<b>994,198</b>	<b>22,277</b>	<b>25,182</b>
<b>%</b>	<b>100.0</b>		<b>24.9</b>	<b>71.7</b>	<b>1.6</b>	<b>1.8</b>
<b>Pertanian, perhutanan &amp; perikanan</b> <i>Agriculture, forestry &amp; fishing</i>	<b>5,907</b>	<b>0.4</b>	<b>1,472</b>	<b>3,488</b>	<b>601</b>	<b>345</b>
<b>Perlombongan &amp; pengkuarian</b> <i>Mining &amp; quarrying</i>	<b>69,360</b>	<b>5.0</b>	<b>16,305</b>	<b>50,490</b>	<b>1,394</b>	<b>1,170</b>
<b>Pembuatan</b> <i>Manufacturing</i>	<b>1,217,662</b>	<b>87.8</b>	<b>299,968</b>	<b>897,869</b>	<b>8,169</b>	<b>11,655</b>
<b>Pembinaan</b> <i>Construction</i>	<b>42,057</b>	<b>3.0</b>	<b>14,329</b>	<b>16,291</b>	<b>441</b>	<b>10,996</b>
<b>Perkhidmatan</b> <i>Services</i>	<b>52,444</b>	<b>3.8</b>	<b>13,698</b>	<b>26,059</b>	<b>11,672</b>	<b>1,015</b>
<b>Bekalan elektrik, gas, wap &amp; pendingin udara</b> <i>Electricity, gas, steam &amp; air conditioning supply</i>	8,293	0.6	3,023	4,803	200	267
<b>Bekalan air; pemptungan, pengurusan sisa &amp; aktiviti pemulihan</b> <i>Water supply; sewerage, waste management &amp; remediation activities</i>	16,198	1.2	2,029	13,906	140	123
<b>Pengangkutan &amp; penyimpanan</b> <i>Transportation &amp; storage</i>	20,768	1.5	6,196	2,972	11,302	298
<b>Lain-lain perkhidmatan</b> <i>Other services</i>	7,185	0.5	2,450	4,377	31	327



# Statistik Perbelanjaan Untuk Pengurusan Sisa

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*Statistics on Expenditure  
for Waste Management*

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Jadual 7: Perbelanjaan pengurusan sisa mengikut sektor dan jenis sisa, 2020

Table 7: Waste management expenditure by sector and type of waste, 2020

Sektor Sector	Jumlah Total		Jenis sisa Type of waste			
			Sisa pepejal tidak berbahaya Non-hazardous solid waste		Sisa terjadual Scheduled waste	
	(RM'000)	%	(RM'000)	%	(RM'000)	%
<b>Jumlah</b> Total	<b>766,765</b>	<b>100.0</b>	<b>248,106</b>	<b>100.0</b>	<b>518,659</b>	<b>100.0</b>
%	<b>100.0</b>		<b>32.4</b>		<b>67.6</b>	
<b>Pertanian, perhutanan &amp; perikanan</b> <i>Agriculture, forestry &amp; fishing</i>	<b>6,967</b>	<b>0.9</b>	<b>5,682</b>	<b>2.3</b>	<b>1,285</b>	<b>0.2</b>
<b>Perlombongan &amp; pengkuarian</b> <i>Mining &amp; quarrying</i>	<b>16,409</b>	<b>2.1</b>	<b>2,153</b>	<b>0.9</b>	<b>14,256</b>	<b>2.7</b>
<b>Pembuatan</b> <i>Manufacturing</i>	<b>532,087</b>	<b>69.4</b>	<b>104,869</b>	<b>42.3</b>	<b>427,218</b>	<b>82.4</b>
<b>Pembinaan</b> <i>Construction</i>	<b>15,859</b>	<b>2.1</b>	<b>12,984</b>	<b>5.2</b>	<b>2,875</b>	<b>0.6</b>
<b>Perkhidmatan</b> <i>Services</i>	<b>195,442</b>	<b>25.5</b>	<b>122,418</b>	<b>49.3</b>	<b>73,024</b>	<b>14.1</b>
<b>Bekalan elektrik, gas, wap &amp; pendingin udara</b> <i>Electricity, gas, steam &amp; air conditioning supply</i>	4,382	0.6	484	0.2	3,898	0.8
<b>Bekalan air; pembetulan, pengurusan sisa &amp; aktiviti pemulihan</b> <i>Water supply; sewerage, waste management &amp; remediation activities</i>	144,208	18.8	103,574	41.7	40,634	7.8
<b>Pengangkutan &amp; penyimpanan</b> <i>Transportation &amp; storage</i>	12,720	1.7	5,339	2.2	7,381	1.4
<b>Lain-lain perkhidmatan</b> <i>Other services</i>	34,133	4.5	13,021	5.2	21,112	4.1

Jadual 7.1: Perbelanjaan modal pengurusan sisa mengikut sektor dan jenis sisa, 2020  
Table 7.1: Capital expenditure on waste management by sector and type of waste, 2020

Sektor Sector	Jumlah Total		Jenis sisa Type of waste			
			Sisa pepejal tidak berbahaya Non-hazardous solid waste		Sisa terjadual Scheduled waste	
	(RM'000)	%	(RM'000)	%	(RM'000)	%
<b>Jumlah</b> <i>Total</i>	<b>16,629</b>	<b>100.0</b>	<b>3,708</b>	<b>100.0</b>	<b>12,921</b>	<b>100.0</b>
<b>%</b>	<b>100.0</b>		<b>22.3</b>		<b>77.7</b>	
<b>Pertanian, perhutanan &amp; perikanan</b> <i>Agriculture, forestry &amp; fishing</i>	<b>83</b>	<b>0.5</b>	<b>9</b>	<b>0.2</b>	<b>74</b>	<b>0.6</b>
<b>Perlombongan &amp; pengkuarian</b> <i>Mining &amp; quarrying</i>	<b>38</b>	<b>0.2</b>	<b>6</b>	<b>0.2</b>	<b>33</b>	<b>0.3</b>
<b>Pembuatan</b> <i>Manufacturing</i>	<b>15,045</b>	<b>90.5</b>	<b>2,992</b>	<b>80.7</b>	<b>12,053</b>	<b>93.3</b>
<b>Pembinaan</b> <i>Construction</i>	<b>489</b>	<b>2.9</b>	<b>303</b>	<b>8.2</b>	<b>185</b>	<b>1.4</b>
<b>Perkhidmatan</b> <i>Services</i>	<b>974</b>	<b>5.9</b>	<b>398</b>	<b>10.7</b>	<b>577</b>	<b>4.5</b>
<b>Bekalan elektrik, gas, wap &amp; pendingin udara</b> <i>Electricity, gas, steam &amp; air conditioning supply</i>	-	-	-	-	-	-
<b>Bekalan air; pembetulan, pengurusan sisa &amp; aktiviti pemulihan</b> <i>Water supply; sewerage, waste management &amp; remediation activities</i>	459	2.8	216	5.8	243	1.9
<b>Pengangkutan &amp; penyimpanan</b> <i>Transportation &amp; storage</i>	184	18.9	-	-	184	31.9
<b>Lain-lain perkhidmatan</b> <i>Other services</i>	332	2.0	182	4.9	150	1.2

Jadual 7.2: Perbelanjaan operasi pengurusan sisa mengikut sektor dan jenis sisa, 2020

Table 7.2: Operating expenditure on waste management by sector and type of waste, 2020

Sektor Sector	Jumlah Total		Jenis sisa Type of waste			
	(RM'000)	%	Sisa pepejal tidak berbahaya Non-hazardous solid waste		Sisa terjadual Scheduled waste	
	(RM'000)	%	(RM'000)	%	(RM'000)	%
<b>Jumlah</b> <i>Total</i>	<b>695,475</b>	<b>100.0</b>	<b>244,398</b>	<b>100.0</b>	<b>451,077</b>	<b>100.0</b>
%	100.0		35.1		64.9	
<b>Pertanian, perhutanan &amp; perikanan</b> <i>Agriculture, forestry &amp; fishing</i>	<b>6,833</b>	<b>1.0</b>	<b>5,674</b>	<b>2.3</b>	<b>1,159</b>	<b>0.3</b>
<b>Perlombongan &amp; pengkuarian</b> <i>Mining &amp; quarrying</i>	<b>16,359</b>	<b>2.4</b>	<b>2,147</b>	<b>0.9</b>	<b>14,212</b>	<b>3.2</b>
<b>Pembuatan</b> <i>Manufacturing</i>	<b>470,374</b>	<b>67.6</b>	<b>101,877</b>	<b>41.7</b>	<b>368,497</b>	<b>81.7</b>
<b>Pembinaan</b> <i>Construction</i>	<b>15,281</b>	<b>2.2</b>	<b>12,681</b>	<b>5.2</b>	<b>2,600</b>	<b>0.6</b>
<b>Perkhidmatan</b> <i>Services</i>	<b>186,628</b>	<b>26.8</b>	<b>122,020</b>	<b>49.9</b>	<b>64,608</b>	<b>14.3</b>
<b>Bekalan elektrik, gas, wap &amp; pendingin udara</b> <i>Electricity, gas, steam &amp; air conditioning supply</i>	4,277	0.6	484	0.2	3,793	0.8
<b>Bekalan air; pembetulan, pengurusan sisa &amp; aktiviti pemulihan</b> <i>Water supply; sewerage, waste management &amp; remediation activities</i>	143,749	20.7	103,357	42.3	40,391	9.0
<b>Pengangkutan &amp; penyimpanan</b> <i>Transportation &amp; storage</i>	8,471	1.2	5,339	2.2	3,132	0.7
<b>Lain-lain perkhidmatan</b> <i>Other services</i>	30,132	4.3	12,840	5.3	17,292	3.8

Jadual 7.3: Perbelanjaan pengurusan sisa terjadual mengikut sektor dan jenis sisa, 2020

Table 7.3: Scheduled waste management expenditure by sector and type of waste, 2020

Sektor <i>Sector</i>	Jumlah <i>Total</i>		Sisa terjadual <i>Scheduled waste</i>			
			Pepejal <i>Solid</i>		Cecair <i>Liquid</i>	
	(RM'000)	%	(RM'000)	%	(RM'000)	%
<b>Jumlah</b> <i>Total</i>	<b>518,659</b>	<b>100.0</b>	<b>360,953</b>	<b>100.0</b>	<b>157,705</b>	<b>100.0</b>
%	<b>100.0</b>		<b>69.6</b>		<b>30.4</b>	
<b>Pertanian, perhutanan &amp; perikanan</b> <i>Agriculture, forestry &amp; fishing</i>	<b>1,285</b>	<b>0.2</b>	<b>955</b>	<b>0.3</b>	<b>330</b>	<b>0.2</b>
<b>Perlombongan &amp; pengkuarian</b> <i>Mining &amp; quarrying</i>	<b>14,256</b>	<b>2.7</b>	<b>3,103</b>	<b>0.9</b>	<b>11,154</b>	<b>7.1</b>
<b>Pembuatan</b> <i>Manufacturing</i>	<b>427,218</b>	<b>82.4</b>	<b>299,159</b>	<b>82.9</b>	<b>128,059</b>	<b>81.2</b>
<b>Pembinaan</b> <i>Construction</i>	<b>2,875</b>	<b>0.6</b>	<b>1,620</b>	<b>0.4</b>	<b>1,255</b>	<b>0.8</b>
<b>Perkhidmatan</b> <i>Services</i>	<b>73,024</b>	<b>14.1</b>	<b>56,117</b>	<b>15.5</b>	<b>16,908</b>	<b>10.7</b>
<b>Bekalan elektrik, gas, wap &amp; pendingin udara</b> <i>Electricity, gas, steam &amp; air conditioning supply</i>	3,898	0.8	3,276	0.9	622	0.4
<b>Bekalan air; pembedungan, pengurusan sisa &amp; aktiviti pemulihan</b> <i>Water supply; sewerage, waste management &amp; remediation activities</i>	40,634	7.8	36,558	10.1	4,076	2.6
<b>Pengangkutan &amp; penyimpanan</b> <i>Transportation &amp; storage</i>	7,381	1.4	1,392	0.4	5,988	3.8
<b>Lain-lain perkhidmatan</b> <i>Other services</i>	21,112	4.1	14,890	4.1	6,222	3.9

# Statistik Perbelanjaan Untuk Penilaian dan Caj Alam Sekitar

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*Statistics on Expenditure  
for Environmental  
Assessment and Charges*

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**Jadual 8: Perbelanjaan penilaian dan caj alam sekitar mengikut sektor, 2020**

*Table 8: Environmental assessment and charges expenditure by sector, 2020*

Sektor <i>Sector</i>	Jumlah <i>Total</i>		Penilaian alam sekitar <i>Environmental assessment</i>		Caj alam sekitar <i>Environmental charges</i>	
	(RM'000)	%	(RM'000)	%	(RM'000)	%
<b>Jumlah</b> <i>Total</i>	<b>67,187</b>	<b>100.0</b>	<b>64,221</b>	<b>100.0</b>	<b>2,966</b>	<b>100.0</b>
%	<b>100.0</b>		<b>95.6</b>		<b>4.4</b>	
<b>Pertanian, perhutanan &amp; perikanan</b> <i>Agriculture, forestry &amp; fishing</i>	<b>7,055</b>	<b>10.5</b>	<b>6,499</b>	<b>10.1</b>	<b>555</b>	<b>18.7</b>
<b>Perlombongan &amp; pengkuarian</b> <i>Mining &amp; quarrying</i>	<b>3,130</b>	<b>4.7</b>	<b>3,128</b>	<b>4.9</b>	<b>3</b>	<b>0.1</b>
<b>Pembuatan</b> <i>Manufacturing</i>	<b>34,266</b>	<b>51.0</b>	<b>32,379</b>	<b>50.4</b>	<b>1,887</b>	<b>63.6</b>
<b>Pembinaan</b> <i>Construction</i>	<b>7,347</b>	<b>10.9</b>	<b>7,319</b>	<b>11.4</b>	<b>28</b>	<b>0.9</b>
<b>Perkhidmatan</b> <i>Services</i>	<b>15,389</b>	<b>22.9</b>	<b>14,896</b>	<b>23.2</b>	<b>493</b>	<b>16.6</b>
<b>Bekalan elektrik, gas, wap &amp; pendingin udara</b> <i>Electricity, gas, steam &amp; air conditioning supply</i>	320	0.5	320	0.5	-	-
<b>Bekalan air; pembersihan, pengurusan sisa &amp; aktiviti pemulihan</b> <i>Water supply; sewerage, waste management &amp; remediation activities</i>	5,275	7.9	4,829	7.5	446	15.0
<b>Pengangkutan &amp; penyimpanan</b> <i>Transportation &amp; storage</i>	4,273	6.4	4,235	6.6	38	1.3
<b>Lain-lain perkhidmatan</b> <i>Other services</i>	5,520	8.2	5,511	8.6	9	0.3

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Statistik Perbelanjaan  
Perlindungan Alam Sekitar  
Mengikut Jenis Perbelanjaan

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*Statistics on Environmental  
Protection Expenditure by  
Type of Expenditure*

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**Jadual 9: Perbelanjaan perlindungan alam sekitar mengikut jenis perbelanjaan, 2020**

*Table 9: Environmental protection expenditure by type of expenditure, 2020*

Jenis perbelanjaan <i>Type of expenditure</i>	Jumlah <i>Total</i>		Perbelanjaan modal <i>Capital expenditure</i>		Perbelanjaan operasi <i>Operating expenditure</i>	
	(RM'000)	%	(RM'000)	%	(RM'000)	%
<b>Jumlah</b> <i>Total</i>	<b>2,972,801</b>	<b>100.0</b>	<b>761,421</b>	<b>25.6</b>	<b>2,211,380</b>	<b>74.4</b>
<b>Pengurusan pencemaran</b> <i>Pollution management</i>	<b>2,103,668</b>	<b>70.8</b>	<b>716,239</b>	<b>34.0</b>	<b>1,387,429</b>	<b>66.0</b>
<b>Pengawasan alam sekitar</b> <i>Environmental monitoring</i>	273,566	9.2	82,859	30.3	190,707	69.7
<b>Tebus guna tapak &amp; pembersihan</b> <i>Site reclamation &amp; decommissioning</i>	9,101	0.3	908	10.0	8,193	90.0
<b>Peredaan &amp; kawalan pencemaran</b> <i>Pollution abatement &amp; control</i>	1,713,116	57.6	591,405	34.5	1,121,711	65.5
<b>Pencegahan pencemaran</b> <i>Pollution prevention</i>	107,885	3.6	41,067	38.1	66,818	61.9
<b>Perlindungan hidupan liar &amp; habitat</b> <i>Protection of wildlife &amp; habitat</i>	<b>18,005</b>	<b>0.6</b>	<b>9,906</b>	<b>55.0</b>	<b>8,099</b>	<b>45.0</b>
<b>Perbelanjaan penilaian dan caj alam sekitar</b> <i>Environmental assessment and charges expenditure</i>	<b>67,187</b>	<b>2.3</b>	<b>14,850</b>	<b>22.1</b>	<b>52,337</b>	<b>77.9</b>
<b>Perbelanjaan pengurusan sisa</b> <i>Waste management expenditure</i>	<b>766,765</b>	<b>25.8</b>	<b>18,702</b>	<b>2.4</b>	<b>748,063</b>	<b>97.6</b>
<b>Perbelanjaan lain untuk perlindungan alam sekitar</b> <i>Other environmental protection expenditure</i>	<b>17,176</b>	<b>0.6</b>	<b>1,724</b>	<b>10.0</b>	<b>15,452</b>	<b>90.0</b>

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Nota Teknikal

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*Technical Notes*

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## 1. PENGENALAN

Laporan ini adalah hasil daripada Survei Perbelanjaan Perlindungan Alam Sekitar yang dijalankan pada 2021 bagi tahun rujukan 2020. Survei Perbelanjaan Perlindungan Alam Sekitar telah dijalankan secara tahunan mulai 2008. Namun begitu, bagi 2011 dan 2016, survei ini diliputi di bawah Banci Ekonomi. Tiada survei dijalankan pada tahun 2017 (tahun rujukan 2016).

## 2. OBJEKTIF

Objektif survei adalah untuk mengumpul statistik berkaitan pertubuhan yang mempunyai perbelanjaan perlindungan alam sekitar meliputi perbelanjaan modal dan operasi mengikut aktiviti, media dan jenis perbelanjaan.

## 3. KUASA PERUNDANGAN

Survei ini dilaksanakan di bawah **Akta Perangkaan 1965 (Disemak-1989)**. Seksyen 5 di bawah Akta ini menghendaki mana-mana pertubuhan yang beroperasi di Malaysia untuk memberi maklumat sebenar atau anggaran terbaik kepada Jabatan. Mengikut Akta ini, kandungan soal selidik yang diterima adalah sulit dan hanya angka agregat diterbitkan.

## 4. SKOP DAN LIPUTAN

Survei ini meliputi pertubuhan dalam sektor berikut:

- i. pertanian, perhutanan & perikanan;
- ii. perlombongan & pengkuarian;
- iii. pembuatan;
- iv. bekalan elektrik, gas, wap & pendingin udara;
- v. bekalan air; pembedung, pengurusan sisa & aktiviti pemulihan;
- vi. pembinaan;
- vii. pengangkutan & penyimpanan;
- viii. penginapan;
- ix. aktiviti perkhidmatan makanan & minuman;
- x. maklumat & komunikasi;
- xi. aktiviti hartanah;
- xii. aktiviti profesional, saintifik & teknikal;
- xiii. pendidikan;
- xiv. aktiviti kesihatan kemanusiaan & kerja sosial;
- xv. kesenian, hiburan & rekreasi;

- xvi. aktiviti pentadbiran & khidmat sokongan; dan
- xvii. aktiviti perkhidmatan lain.

Liputan industri merujuk kepada Piawaian Klasifikasi Industri Malaysia (MSIC) 2008 Ver. 1.0.

### 5. POPULASI

Semua pertubuhan meliputi 460 industri lima (5) digit berasaskan kod Piawaian Klasifikasi Industri Malaysia 2008 Ver 1.0 (MSIC).

### 6. RANGKA PENSAMPELAN

Rangka pensampelan adalah melibatkan pertubuhan aktif berjumlah 10,386 pertubuhan.

### 7. REKA BENTUK PENSAMPELAN

Reka bentuk pensampelan bagi survei ini adalah pensampelan rawak strata satu peringkat. Kategori sektor telah diklasifikasikan sebagai strata manakala pertubuhan sebagai unit pensampelan.

Setiap strata (sektor) telah dibentuk kepada empat substrata untuk memastikan sampel yang diagihkan mengambil kira ciri-ciri ekonomi industri tersebut. Substrata utama bersifat heterogen diliputi secara liputan penuh. Manakala, substrata selainnya bersifat homogen disampelan.

Substrata utama meliputi pertubuhan kategori besar yang mempunyai jumlah hasil yang signifikan dalam industri liputan manakala bagi substrata kedua hingga keempat berdasarkan kategori perusahaan kecil dan sederhana (PKS).

### 8. SAIZ SAMPEL

Statistik utama yang digunakan untuk penganggaran saiz sampel adalah jumlah hasil. Kaedah penentuan saiz sampel adalah mengikut peratus sumbangan nilai hasil kepada domain analisis (2D/1D) bagi survei PPMAS.

Sumbangan nilai hasil bagi **strata satu** kepada jumlah nilai hasil mengikut peringkat rekabentuk pensampelan adalah melebihi 85%. Bagi mengambil kira 15% sumbangan strata 2-4, 2 pertubuhan dipilih secara rawak bagi mewakili setiap strata 2,3 dan 4 di setiap daerah.

Saiz sampel optimum bagi survei ini adalah 4,597 pertubuhan. Pertubuhan kategori besar diliputi sepenuhnya, manakala pertubuhan bagi substrata kedua hingga keempat dipilih secara rawak mengikut kaedah pensampelan bersistematik.

## 9. WAJARAN

Analisis berwajaran disediakan menggunakan wajaran bagi memastikan sampel yang dipilih dapat menggambarkan populasi survei. Wajaran yang diperlukan adalah wajaran di peringkat reka bentuk pensampelan dan wajaran tiada respons.

Wajaran reka bentuk pensampelan pada substrata  $h$  adalah seperti berikut :

$$W_h = \frac{N_h}{n_h}, \quad h = 1, \dots, 4$$

di mana;

$N_h$  = Bilangan populasi bagi substrata  $h$ ; dan

$n_h$  = Bilangan sampel bagi substrata  $h$

Wajaran tiada respons pada substrata  $h$  adalah seperti berikut :

$$NRW_h = \frac{1}{\frac{n'_h}{n_h}}, \quad h = 1, \dots, 4$$

di mana;

$n'_h$  = Bilangan sampel respon bagi substrata  $h$

$n_h$  = Bilangan sampel bagi substrata  $h$

Kaedah pengiraan wajaran reka bentuk pensampelan selepas survei (*adjusted weight*) pada substrata  $h$  seperti berikut:

$$W'_h = W_h \times NRW_h, \quad h = 1, \dots, 4$$

di mana;

$W_h$  = Wajaran reka bentuk pensampelan pada substrata  $h$

$NRW_h$  = Wajaran tiada respons pada substrata  $h$

### 10. KAEDAH PENGUMPULAN

Survei ini dijalankan melalui mel. Responden diberi tempoh satu bulan untuk melengkapkan dan mengembalikan borang soal selidik tersebut kepada Jabatan. Kerja luar dijalankan untuk mendapatkan maklum balas daripada pertubuhan yang tidak respon.

### 11. UNIT PELAPOR

Unit pelapor bagi survei ini ialah pertubuhan. Sesebuah pertubuhan ditakrifkan sebagai “satu unit ekonomi yang bergiat di bawah satu hak milik atau penguasaan tunggal, iaitu di bawah satu entiti yang sah. Ia menjalankan satu jenis aktiviti ekonomi utama di satu tempat/lokasi fizikal”.

Setiap pertubuhan diberikan klasifikasi industri berdasarkan aktiviti utamanya. Bagi pertubuhan yang menjalankan pelbagai aktiviti, unit yang bergiat dalam aktiviti yang berasingan dalam satu lokasi yang sama terdiri daripada pertubuhan yang berbeza.

Oleh itu, setiap cawangan daripada organisasi yang mempunyai pelbagai cawangan di lokasi yang berbeza dari segi konsep dianggap sebagai pertubuhan yang berlainan. Pertubuhan berkenaan diminta memberikan penyata yang berasingan bagi setiap kegiatannya dari segi nilai.

Walau bagaimanapun, dari segi praktis akaun biasanya disediakan secara berpusat kerana kesukaran untuk memperoleh data yang berasingan bagi setiap unit atau cawangan. Entiti atau *enterprise* ini akan dianggap sebagai satu unit pelapor dan dibenarkan mengemukakan soal selidik yang menggabungkan semua unit atau cawangannya.

### 12. TAHUN SURVEI

Tahun survei adalah merujuk kepada tahun pelaksanaan survei.

### 13. TAHUN RUJUKAN

Tahun rujukan bagi survei ini ialah tahun takwim 2020. Pertubuhan yang mempunyai tahun perakaunan yang berbeza daripada tahun takwim diminta menyediakan laporan mengikut tahun perakaunan atau kewangan yang meliputi sebahagian besar daripada tahun rujukan.

## 14. KONSEP DAN DEFINISI

### 14.1 Perbelanjaan perlindungan alam sekitar<sup>1</sup>

Perbelanjaan ini merujuk kepada semua perbelanjaan modal dan perbelanjaan operasi & baik pulih oleh pertubuhan selaras dengan pematuhan alam sekitar, konvensional atau perjanjian secara sukarela. Ia termasuk perbelanjaan untuk:

- a. Perbelanjaan pengurusan pencemaran meliputi pengawasan alam sekitar; tebus guna & pembersihan tapak; peredaan & kawalan pencemaran dan pencegahan pencemaran;
- b. Perlindungan hidupan liar & habitat;
- c. Penilaian dan caj alam sekitar;
- d. Pengurusan sisa; dan
- e. Perbelanjaan lain untuk perlindungan alam sekitar termasuk program dan latihan, kempen kesedaran, kursus dan sumbangan.

### 14.2 Perbelanjaan modal

Termasuk segala perbelanjaan melibatkan pemasangan, pembinaan, pembinaan semula, lanjutan, pemulihan, penyesuaian atau pemodenan berkaitan peralatan dan kelengkapan berbentuk harta modal, di mana tujuan utama adalah untuk mengumpul, merawat, memantau dan mengawal, mengurangkan, mencegah, atau menghapuskan pencemaran atau degradasi lain persekitaran yang terhasil daripada aktiviti operasi pertubuhan. Perbelanjaan ini tidak termasuk mana-mana peruntukan untuk liabiliti persekitaran akan datang.

### 14.3 Perbelanjaan operasi

Perbelanjaan operasi meliputi kos buruh; bayaran sewa; penggunaan bahan & tenaga; penyelenggaraan dan pembaikan; dan pembelian perkhidmatan, di mana tujuan utama adalah untuk mengumpul, merawat, memantau dan mengawal, mengurangkan, mencegah, atau menghapuskan pencemaran atau degradasi lain persekitaran yang terhasil daripada aktiviti operasi pertubuhan. Ia termasuk kos dalaman (termasuk kos operasi dan penyelenggaraan peralatan perlindungan alam sekitar serta caj alam

<sup>1</sup> Konsep dan definisi berdasarkan kepada *Environmental Expenditure Statistics: Industry Data Collection Handbook 2005* oleh Eurostat, *Environmental Protection Expenditures in the Business Sector* yang diterbitkan oleh Statistics Canada dan CEPA 2000

sekitar), kos perkhidmatan yang diberikan oleh entiti luar, caj untuk rawatan air sisa dan pengumpulan sisa; kos sistem kawalan, pemantauan, penyelidikan makmal, pengurusan dan lain-lain.

### 14.4 Media alam sekitar<sup>2</sup>

Media alam sekitar merujuk kepada komponen abiotik alam semulajadi iaitu udara, air dan tanah. Media alam sekitar yang diliputi dalam Survei Perbelanjaan Perlindungan Alam Sekitar ini adalah udara, air permukaan, air bawah tanah dan bunyi bising.

### 14.5 Perbelanjaan pengurusan pencemaran mengikut aktiviti

#### a. Pengawasan alam sekitar

Pendekatan yang sistematik untuk memerhati, mengkaji dan memantau alam sekitar. Ia melibatkan pengumpulan sampel dan spesimen dari udara, air dan tanah untuk menentukan samada apa-apa faktor fizikal atau biologi yang memberi kesan negatif terhadap ekosistem semulajadi dan habitat.

Perbelanjaan ini melibatkan kos berkaitan perkakasan, buruh dan perkhidmatan yang dibelanjakan bagi memenuhi peraturan dan konvensyen untuk mengawasi bahan cemar yang dilepaskan oleh pertubuhan contohnya pemasangan alat pemantauan (CEMS) dan P.H meter.

#### b. Tebus guna & pembersihan tapak

Tebus guna tapak adalah bertujuan untuk memulihkan tapak kepada keadaan stabil yang menghampiri keadaan asal.

Pembersihan tapak adalah proses penyingkiran struktur dan kemudahan projek selepas pertubuhan menghentikan operasi. Pembersihan diperlukan untuk menghilangkan bahan kimia atau bahan berbahaya kepada alam sekitar untuk menjadikan tapak industri selamat dan estetik.

Perbelanjaan ini melibatkan aktiviti pemulihan dan pembersihan bagi kerosakan alam sekitar yang disebabkan oleh pertubuhan. Tidak termasuk penalti/kompaun yang dikenakan kerana kerosakan alam sekitar atau sebarang tanggungan kepada alam sekitar pada masa hadapan.

Contoh: Pemulihan tapak pelupusan (*landfill*) dijadikan taman rekreasi.

<sup>2</sup> Konsep dan definisi berdasarkan kepada *Glosary of Statistical terms by the Organisation for Economic Co-operation and Development (OECD)*

### c. Peredaan & kawalan pencemaran

Aktiviti ini bertujuan untuk pengurangan dan penghapusan pencemaran atau gangguan yang timbul daripada sisa pengeluaran atau penggunaan barangan dan perkhidmatan.

Perbelanjaan ini meliputi kos perkakasan/kemudahan yang dipasang untuk mengekang atau mengurangkan pelepasan bahan cemar.

Contoh: Pemasangan cerobong asap, *waste water treatment plant* dan *noise boundary wall*.

### d. Pencegahan pencemaran

Aktiviti pencegahan pencemaran adalah termasuk pengubahsuaian ke atas kaedah pengeluaran, teknologi, proses operasi, peralatan (atau sebahagian daripadanya) yang direka untuk mencegah atau mengurangkan pencemaran yang terhasil di peringkat sumber, sekali gus mengurangkan kesan alam sekitar yang berkaitan dengan pelepasan pencemaran di hujung-paip.

Perbelanjaan meliputi pembelian teknologi dan peralatan yang mengurangkan atau menghapuskan pencemaran dan sisa yang bukan di hujung paip atau timbunan sebelum pencemaran atau bahan buangan terhasil.

Contoh: Penggunaan *silencer* untuk generator dan menggunakan peralatan teknologi hijau.

## 14.6 Perlindungan hidupan liar & habitat

Aktiviti ini bagi melindungi spesies haiwan dan tumbuhan liar dan memulihara habitat hidupan liar, terutamanya spesies yang terpelihara.

Perbelanjaan bagi mematuhi peraturan dan konvensyen bagi melindungi hidupan liar dan habitat dari mana-mana kesan operasi/aktiviti pertubuhan.

Contoh: Menyediakan laluan khas bagi hidupan liar (*wildlife crossing*) di lebuh raya.

## 14.7 Perbelanjaan penilaian alam sekitar

Ini merujuk kepada perbelanjaan bagi menilai impak alam sekitar (EIA) daripada program/aktiviti pertubuhan termasuk kos perundangan dan perundingan yang berkaitan.

Bayaran perundangan dan audit dalam operasi semasa serta kos lain untuk mendapatkan sijil alam sekitar.

### 14.8 Caj alam sekitar

Caj alam sekitar adalah caj yang mesti dibayar untuk penggunaan sumber asli dan juga untuk kerugian yang disebabkan oleh pencemaran alam sekitar.

Contoh: Perbelanjaan bagi permit, yuran, denda, penalti atau pampasan kerosakan yang dibayar kepada agensi kerajaan atau individu dan caj lain yang dibayar kepada badan-badan yang mengawal selia untuk membenarkan operasi dijalankan di pertubuhan ini.

### 14.9 Perbelanjaan pengurusan sisa

Perbelanjaan ini merujuk kepada kos yang terlibat dalam aktiviti dan tindakan yang diperlukan untuk menguruskan sisa yang terhasil daripada operasi pengeluaran produk bermula dari penghasilan sisa hingga pelupusan akhir. Ini termasuk pengumpulan, penyimpanan, pengangkutan, rawatan dan pelupusan sisa bersama-sama dengan pemantauan dan peraturan.

#### a. Sisa pepejal tidak berbahaya

Sisa pepejal tidak berbahaya merujuk kepada bahan sekerap atau benda lebihan lain yang tidak dikehendaki atau keluaran yang ditolak yang timbul daripada penggunaan apa-apa proses dan benda yang perlu dilupuskan. Rujuk kepada Akta 672-Akta Pengurusan Sisa Pepejal dan Pembersihan Awam 2007.

#### b. Sisa terjadual (pepejal/cecair)

Sisa terjadual ialah sisa toksik dan/atau sisa berbahaya, kecuali patogenik, kuarantin dan sisa boleh letup yang termasuk dalam kategori sisa yang tersenarai dalam Jadual Pertama Peraturan Kualiti Alam Sekeliling (Buangan Terjadual) 2005.

### 14.10 Perbelanjaan lain untuk perlindungan alam sekitar

Perbelanjaan lain untuk perlindungan alam sekitar termasuk kempen kesedaran alam sekitar, kursus, seminar dan bengkel alam sekitar.



Sumbangan kepada sekolah, universiti dan agensi berkaitan bagi menjalankan aktiviti kesedaran untuk melindungi alam sekitar seperti Hari Bumi, Hari Hijau, program kitar semula, menanam pokok bakau dan program pemuliharaan hidupan liar di zoo atau menjadikan sungai sebagai sungai angkat untuk memantau kebersihan.

Bekerjasama dengan agensi kerajaan dan swasta atau orang ramai melaksanakan aktiviti membersihkan kawasan hutan simpan dan sebagainya. Tidak termasuk pembersihan yang dilakukan di kawasan pertubuhan.

#### 14.11 Pensijilan alam sekitar

##### a. ISO 14001

Merupakan piawaian pengurusan alam sekitar di peringkat antarabangsa. Ia menyediakan satu set keperluan standard bagi sistem pengurusan alam sekitar (EMS). Ia juga menyediakan rangka kerja bagi pengurusan alam sekitar amalan terbaik untuk organisasi bantuan untuk mencegah pencemaran, mengurangkan kesan alam sekitar, mematuhi undang-undang alam sekitar dan membangunkan perniagaan dengan cara yang mampan.

##### b. Pensijilan antarabangsa lain

- **ISO 14004** menyediakan panduan mengenai pembangunan, pelaksanaan, penyelenggaraan dan penambahbaikan sistem pengurusan alam sekitar serta diselaraskan dengan sistem pengurusan yang lain. Garis panduan dalam ISO 14004 adalah terpakai kepada mana-mana organisasi, tanpa mengira saiz, jenis, lokasi atau tahap matang. Walaupun garis panduan ISO 14004 adalah selaras dengan model sistem pengurusan alam sekitar ISO 14001, ia tidak bertujuan untuk memenuhi keperluan ISO 14001.
- **Forest Stewardship Council (FSC)** adalah pensijilan secara sukarela, ia bertujuan memastikan produk hutan diurus secara bertanggungjawab dan memberi manfaat kepada alam sekitar, sosial dan ekonomi. Terdapat 2 jenis sijil iaitu pengurusan hutan dan penjagaan rantaian yang melibatkan pengurusan pengeluaran produk hutan sehingga kepada pengguna akhir.

- **Roundtable on Sustainable Palm Oil (RSPO)** adalah satu jaminan proses pengeluaran minyak kelapa sawit yang mampan kepada pelanggan dan penghasilan komoditi yang tidak menyebabkan kerosakan kepada alam sekitar atau bahaya kepada masyarakat.

Satu set kriteria alam sekitar dan sosial yang mesti dipatuhi oleh syarikat untuk mendapatkan *Certified Sustainable Palm Oil (CSPO)*. Ia boleh membantu untuk mengurangkan kesan negatif daripada ladang kelapa sawit terhadap alam sekitar dan masyarakat di kawasan-kawasan pengeluar minyak sawit.

- **Malaysian Timber Certification Scheme (MTCS)** adalah sijil yang dikeluarkan oleh Majlis Pensijilan Kayu Malaysia (MTCC). Ia merupakan skim sukarela yang memperuntukkan penilaian bebas mengenai amalan pengurusan hutan, untuk memastikan pengurusan ladang hutan dan hutan semulajadi Malaysia yang mampan, dan juga untuk memenuhi permintaan bagi produk kayu disahkan.

### 15. KADAR PERTUMBUHAN TAHUNAN

Pengiraan kadar pertumbuhan tahunan ( $r$ ) adalah berdasarkan formula berikut:

$$r = \frac{Y_t - Y_0}{Y_0} \times 100$$

Di mana,

- $Y_t$  = Nilai pada tahun semasa
- $Y_0$  = Nilai pada tahun sebelum
- $t$  = Bilangan tahun,  $Y_t - Y_0$
- $r$  = Kadar pertumbuhan tahunan

## 16. SIMBOL DAN SINGKATAN

Simbol dan huruf ringkas berikut telah digunakan di dalam keseluruhan penerbitan:

&	dan
%	peratus
-	tiada
0	kurang daripada 0.5
0.0	0.0 kurang daripada 0.05
RM	Ringgit Malaysia
W.P.	Wilayah Persekutuan
e	Anggaran

## 17. PEMBUNARAN

Jumlah bagi komponen mungkin berbeza dengan jumlah besar dalam jadual penerbitan disebabkan oleh pembundaran.

### 1. INTRODUCTION

*This report was based on the outcome of the Environmental Protection Expenditure Survey conducted in 2021 for reference year 2020. Environmental Protection Expenditure Survey was canvassed annually starting from 2008. However, in 2011 and 2016, this survey was covered under the Economic Census. No survey was conducted in 2017 (reference year 2016).*

### 2. OBJECTIVE

*The objective of the survey was to collect statistics regarding establishments that have environmental protection expenditure covering capital and operating expenditure by activity, media and type of expenditure.*

### 3. LEGAL AUTHORITY

*This survey was conducted under the provisions of the **Statistics Act 1965 (Revised-1989)**. Section 5 under this Act, requires any operating establishment in Malaysia to furnish the correct information or their best estimate to the Department. Accordingly, the Act stipulates that the contents of the individual returns received are confidential and only aggregated figures are published.*

### 4. SCOPE AND COVERAGE

*This survey covered establishments in the following sectors:*

- i. agriculture, forestry & fishing;*
- ii. mining & quarrying;*
- iii. manufacturing;*
- iv. electricity, gas, steam & air conditioning supply;*
- v. water supply; sewerage, waste management & remediation activities;*
- vi. construction;*
- vii. transportation & storage;*
- viii. accommodation;*
- ix. food & beverage service activities;*
- x. information & communication;*
- xi. real estate activities;*
- xii. professional, scientific & technical activities;*
- xiii. education;*

- xiv. human health & social work activities.
- xv. arts, entertainment & recreation;
- xvi. administrative & support service activities; and
- xvii. other service activities.

The coverage of industry refers to Malaysia Standard Classification (MSIC) 2008 Ver. 1.0.

## 5. POPULATION

All establishments encompass of 460 industries at five (5) digits based on Malaysia Standard Industrial Classification 2008 Ver 1.0.

## 6. SAMPLING FRAME

From the identified population, sampling frame are covered 10,386 active establishments.

## 7. SAMPLING DESIGN

Sampling design of the survey is a one-stage stratified random sampling. Categories of sector have been classified as stratum and the establishment as the sampling unit.

Each stratum (industry) has been set up to four substratum to ensure the distributed sample takes into account the economic characteristics of the industry. The main substratum is heterogeneous covered in full coverage. Where as, the others homogenous substratum was sampled.

Major substratum include large-scale establishments that have significant revenue streams in the coverage industry while for second and fourth sub-sectors based on small and medium enterprise (SME) categories.

## 8. SAMPLE SIZE

The main statistics used to estimate the sample size is the total environmental expenditure. The method of determining the sample size is according to the percentage contribution of the environmental expenditure to the domain of analysis (2D/1D) for the PPMAS survey. The contribution of environmental expenditure for strata one to the total environmental expenditure according to the sampling design stage is over 85%. To take into account the balance 15% contribution of strata 2-4, 2 establishments were allocated for each strata 2,3 and 4 in each district.

The optimal sample size for this survey was 4,597 establishments. The large establishments were fully covered, while the establishments for the second to fourth substrates were randomly selected according to a systematic sampling method.

## 9. WEIGHT

Weighted analysis is done using sampling weight to ensure that the selected sample can reflect population survey. The weights required are the sampling design weight and non-response weight.

The sampling design weight for the establishment at stratum  $h$  is as follows:

$$W_h = \frac{N_h}{n_h}, \quad h = 1, \dots, 4$$

where,

$N_h$  = Total population of substratum  $h$ ; and

$n_h$  = Total sample of substratum  $h$

Non response weight at substratum  $h$  as below:

$$NRW_h = \frac{1}{\frac{n_h}{n_h}}, \quad h = 1, \dots, 4$$

where,

$n_h'$  = Numbers of response sample size for substratum  $h$

$n_h$  = Numbers of sample size for substratum  $h$

The method of calculating the sampling design weight after the survey (adjusted weight) on substratum  $h$  as below:

$$W'_h = W_h \times NRW_h, \quad h = 1, \dots, 4$$

where,

$W_h$  = Sampling design weight at substratum  $h$

$NRW_h$  = Non response weight at substratum  $h$

## 10. METHOD OF DATA COLLECTION

*This survey was conducted by mail. Respondents were given one month to complete and return the questionnaires to the Department. Field enumeration was undertaken to follow up on non-response cases.*

## 11. REPORTING UNIT

*The reporting unit used in this survey was the establishment. An establishment is defined as “an economic unit engaged in one activity, under a single legal entity and operating in a single physical location.”*

*Each establishment was assigned an industry classification based on its principal activity. In the case of a multi-activity entity, units engaged in separate activities in the same location constituted distinct establishments.*

*Thus, each branch of multi-branch organization at a different location was conceptually treated as a different establishments. The establishment was requested to give separate returns for each activity in terms of value.*

*However, in practice, the accounts were centrally kept such that it was not possible to obtain separate data for each individual unit or branch, the entity or enterprise was treated as a single reporting unit and allowed to submit a consolidated questionnaire covering all the units or branches.*

## 12. SURVEY YEAR

*Survey year refers to the year in which a survey was conducted.*

## 13. REFERENCE YEAR

*The reference year for this survey was the calendar year 2020. Establishments which accounting year differed from the calendar year were requested to report according to the accounting or financial year covering the major part of the reference year.*

## 14. CONCEPTS AND DEFINITIONS

### 14.1 Environmental protection expenditure<sup>1</sup>

*This expenditure refers to all capital expenses and operating & repair expenditures incurred by businesses in order to comply with environmental regulations, conventions or voluntary agreements. They consist of expenditures for:*

- a. Expenditure for pollution management covered environmental monitoring; site reclamation & decommissioning; pollution abatement & control and pollution prevention;*
- b. Protection of wildlife & habitat;*
- c. Environmental assessment and charges;*
- d. Waste management; and*
- e. Other environmental protection expenditure include programme and training, awareness campaigns, courses and donation.*

### 14.2 Capital expenditure

*Environmental capital expenditure involved installment, construction, re-construction, continuation, recovery, adjustment or modernisations related to capital form of equipments and tools, where the main purposes are to collect, treat, observe and control, reduce, prevent, or eliminate pollution or environmental degradation that resulted from establishments' activities. This expenditure does not include any provisions for future environmental liability.*

### 14.3 Operating expenditure

*Environmental operating expenditure includes labour cost; rental; uses of materials & energy; maintenance and repair; and where the main purposes are to collect, treat, observe and control, reduce, prevent, or eliminate pollution or environmental degradation that resulted from establishments' activities.*

*It includes internal costs (including operating cost and maintenance of environmental protection equipment and environmental charges), cost of services provided by external entities, charges for wastewater treatment and waste collection; control system cost, monitoring, lab researches, management and others.*

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<sup>1</sup> Concepts and definitions are based on the *Environmental Expenditure Statistics: Industry Data Collection Handbook 2005* by the Eurostat, *Environmental Protection Expenditures in the Business Sector* published by the Statistics Canada and CEPA 2000



#### 14.4 Environmental media<sup>2</sup>

*Environmental media refers to abiotic components of the natural environment, namely, air, water and land. Environmental media covered by Environmental Protection Expenditure Survey were air, surface water, groundwater and noise.*

#### 14.5 Expenditure for pollution management by activity

##### a. Environmental monitoring

*A systematic approach to observing, studying and monitoring the environment. It involves collection of samples and specimens from air, water and land to determine whether any physical or biological factors gives negative impact on natural ecosystem and habitat.*

*Refers to costs related to equipments, labour and services spent to comply with regulations and convention to monitor contaminants released by establishments  
Example: Install monitoring tools (CEMS) and P.H meter.*

##### b. Site reclamation & decommissioning

*Site reclamation aims to rehabilitate site to stable condition that approximates to the original condition.*

*Site decommissioning is a process of removal of structure and project's facilities after establishments stop their operations. This is needed to remove chemical or harmful substances to the environment to make the industrial site more safe and aesthetic. This expenditure involved recovery and cleaning activities for environmental damages caused by establishments. Excludes penalties/compounds imposed due to environmental damages or any liability to the environment in the future. Example: Recovery of landfill for recreational park.*

##### c. Pollution abatement & control

*These activities aimed in reducing or eliminating pollution or disturbance arises from waste production or uses of goods and services.*

<sup>2</sup> Concepts and definitions are based on the Glossary of Statistical Terms by the Organisation for Economic Co-operation and Development (OECD)

*This expenditure covers cost of equipments/facilities installed to restrain or reduce the release of contaminants. Example: Installation of smoke chimney, waste water treatment plant and noise boundary wall.*

### **d. Pollution prevention**

*Pollution prevention activities include modification of production methods, technologies, operation processes, equipments (or part thereof) which is designed to prevent or minimize pollution at source level, thereby reducing the environmental impact associated with the end-pipe pollution discharge.*

*Expenditure includes purchases of technologies and equipments that reduces or eliminates pollution and waste at the source instead of at the end-of-pipe or stack before the pollution or waste is created. Example: The use of silencer for generator and use of green-technology equipment.*

### **14.6 Protection of wildlife & habitat**

*These activities involved practices of protecting animal species and wild plants and conserving habitat for wildlife, especially on conservation-dependent species.*

*Expenditure in compliance with laws and convention to protect wildlife and habitat from the outcome of establishment's operation/activities. Example: Provide a specific route for wildlife (wildlife crossing) at the highway.*

### **14.7 Environmental assessment expenditure**

*This refers to expenditure to evaluate environmental impact (EIA) of establishment's programs/activities including related legal and consultation costs.*

*Legal and audit fees in current operations and other cost incurred prior environmental certificates.*

### **14.8 Environmental charges**

*Environmental charges are charges that needed to be paid for using of natural resources as well as for losses caused by environmental pollution. Example: Expenditure for permits, fees, fines, penalties or damage compensation paid by government agencies or individuals and other charges paid to regulatory body to allow operations to be carried out by establishments.*

#### **14.9 Waste management expenditure**

*This expenditure refers to cost incurred in activities and actions required to manage waste generated from production of products operations; begins from producing waste until final disposal. Includes collection, storage, transportation, treatment and disposal of waste along with monitoring and regulation.*

##### **a. Non-hazardous solid waste**

*Non-hazardous solid waste refers to any scrap material or unwanted surplus substance or rejected products arising from the application of any process and substance required to be disposed. Refer to Act 672-Solid Waste and Public Cleansing Management Act 2007.*

##### **b. Scheduled waste (solid/liquid)**

*Scheduled waste refers to toxic waste and/or hazardous waste, except pathogenic, quarantined and flammable which is included in the waste category listed in the First Schedule Environmental Quality Regulation (Scheduled Waste) 2005.*

#### **14.10 Other environmental expenditure**

*Other environmental expenditure includes environmental awareness campaign, courses, seminar and environmental workshop.*

*Contribution to schools, universities and related agencies to carried out awareness activities to protect the environment such as Earth Day, Green Day, recycling programme, mangrove trees' planting and conservation programme at zoo or using rivers as a medium to monitor cleaning.*

*Collaboration with government and private agencies or the public to carry out cleaning of reserved forest and others. Excludes cleaning done in the establishments area.*

## 14.11 Environmental certification

### a. ISO 14001

*An international standard environmental management. It provides a set of standard requirements for environmental management system (EMS). This also provides a framework for best practices of environmental management to aid the organisations to prevent pollution, reduce environmental impact, comply with environmental laws and develop businesses in a sustainable manner.*

### b. Other international certification

- **ISO 14004** provides guidance on the development, implementation, maintenance and improvement of environmental management system and their co-ordination with other management systems. The guidelines in this document are intended applicable to any organisation, regardless of size, type, location or maturity level.

*Although ISO 14004 guideline is aligned with ISO 14001 environmental management system model, it is not intended to meet the requirements of ISO 14001.*

- **Forest Stewardship Council (FSC)** is a voluntary certification, which aims to ensure the forest products are being managed responsibly and beneficially to environment, social and economy. There are 2 types of certificates; forest management and chain-of-custody which involved the management of production for forest products all the way to the end user.

- **Roundtable on Sustainable Palm Oil (RSPO)** is a guarantee of sustainable palm oil production process and commodity production that does not bring any damage to the environment and harm to the community.

*A set of environmental criteria and social that need to be complied by establishments to obtain Certified Sustainable Palm Oil (CSPO). It is to help in reducing the negative impact from oil palm plantations to the environment and communities around the producers of palm oil.*

- **Malaysian Timber Certification Scheme (MTCS)** is a certificate issued by Malaysian Timber Certification Council (MTCC). It is a voluntary scheme that provides an independent assessment about practices on forest management, to ensure a sustainable management of forests and natural forests, as well as to meet the demand for certified timber products.

## 15. ANNUAL GROWTH RATE

The annual growth rate ( $r$ ) is calculated based on formula of:

$$r = \frac{Y_t - Y_0}{Y_0} \times 100$$

Where,

- $Y_t$  = Value at current year
- $Y_0$  = Value at previous year
- $t$  = Number of years,  $Y_t - Y_0$
- $r$  = Annual growth rate

## 16. SYMBOLS AND ABBREVIATIONS

The following symbols and notations have been used throughout the publication:

- &      *and*
- %      *per cent*
- *nil*
- 0      *less than 0.5*
- 0.0    *less than 0.05*
- RM     *Ringgit Malaysia*
- W.P.   *Wilayah Persekutuan*
- e      *Estimate*

## 17. ROUNDING

The sum of components may not add up to the totals in the tables presented in this publication due to rounding.

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Lampiran

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*Appendices*

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## **CLASSIFICATION OF ENVIRONMENTAL PROTECTION ACTIVITIES AND EXPENDITURE (CEPA 2000)**

### **1. PROTECTION OF AMBIENT AIR AND CLIMATE**

- 1.1 *Prevention of pollution through in-process modifications*
  - 1.1.1 *for the protection of ambient air*
  - 1.1.2 *for the protection of climate and ozone layer*
- 1.2 *Treatment of exhaust gases and ventilation air*
  - 1.2.1 *for the protection of ambient air*
  - 1.2.2 *for the protection of climate and ozone layer*
- 1.3 *Measurement, control, laboratories and the like*
- 1.4 *Other activities*

### **2. WASTEWATER MANAGEMENT**

- 2.1 *Prevention of pollution through in-process modifications*
- 2.2 *Sewerage networks*
- 2.3 *Wastewater treatment*
- 2.4 *Treatment of cooling water*
- 2.5 *Measurement, control, laboratories and the like*
- 2.6 *Other activities*

### **3. WASTE MANAGEMENT**

- 3.1 *Prevention of pollution through in-process modifications*
- 3.2 *Collection and transport*
- 3.3 *Treatment and disposal of hazardous waste*
  - 3.3.1 *Thermal treatment*
  - 3.3.2 *Landfill*
  - 3.3.3 *Other treatment and disposal*
- 3.4 *Treatment and disposal of non-hazardous waste*
  - 3.4.1 *Incineration*
  - 3.4.2 *Landfill*
  - 3.4.3 *Other treatment and disposal*
- 3.5 *Measurement, control, laboratories and the like*
- 3.6 *Other activities*

### **4. PROTECTION AND REMEDIATION OF SOIL, GROUNDWATER AND SURFACE WATER**

- 4.1 *Prevention of pollutant infiltration*
- 4.2 *Cleaning up of soil and water bodies*
- 4.3 *Protection of soil from erosion and other physical degradation*
- 4.4 *Prevention and remediation of soil salinity*
- 4.5 *Measurement, control, laboratories and the like*
- 4.6 *Other activities*

### **5. NOISE AND VIBRATION ABATEMENT (excluding workplace protection)**

- 5.1 *Preventive in-process modifications at the source*
  - 5.1.1 *Road and rail traffic*
  - 5.1.2 *Air traffic*
  - 5.1.3 *Industrial and other noise*
- 5.2 *Construction of anti-noise/vibration facilities*
  - 5.2.1 *Road and rail traffic*
  - 5.2.2 *Air traffic*
  - 5.2.3 *Industrial and other noise*
- 5.3 *Measurement, control, laboratories and the like*
- 5.4 *Other activities*

### **6. PROTECTION OF BIODIVERSITY AND LANDSCAPES**

- 6.1 *Protection and rehabilitation of species and habitats*
- 6.2 *Protection of natural and semi-natural landscapes*
- 6.3 *Measurement, control, laboratories and the like*
- 6.4 *Other activities*

### **7. PROTECTION AGAINST RADIATION (excluding external safety)**

- 7.1 *Protection of ambient media*
- 7.2 *Transport and treatment of high level radioactive waste*
- 7.3 *Measurement, control, laboratories and the like*
- 7.4 *Other activities*

### **8. RESEARCH AND DEVELOPMENT**

- 8.1 *Protection of ambient air and climate*
  - 8.1.1 *Protection of ambient air*
  - 8.1.2 *Protection of atmosphere and climate*
- 8.2 *Protection of water*
- 8.3 *Waste*
- 8.4 *Protection of soil and groundwater*
- 8.5 *Abatement of noise and vibration*
- 8.6 *Protection of species and habitats*
- 8.7 *Protection against radiation*
- 8.8 *Other research on the environment*

### **9. OTHER ENVIRONMENTAL PROTECTION ACTIVITIES**

- 9.1 *General environmental administration and management*
  - 9.1.1 *General administration, regulation and the like*
  - 9.1.2 *Environmental management*
- 9.2 *Education, training and information*
- 9.3 *Activities leading to indivisible expenditure*
- 9.4 *Activities not elsewhere classified*

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