



KEMENTERIAN EKONOMI
JABATAN PERANGKAAN MALAYSIA

BANCI PERKHIDMATAN DAN PERALATAN MINYAK & GAS

OIL & GAS SERVICES AND EQUIPMENT (OGSE) CENSUS

2024



JABATAN PERANGKAAN MALAYSIA
DEPARTMENT OF STATISTICS MALAYSIA



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BANCI PERKHIDMATAN DAN PERALATAN MINYAK & GAS 2024 *OIL & GAS SERVICES AND EQUIPMENT (OGSE) CENSUS 2024*

Pemakluman

Kepengerusian ASEAN-Malaysia 2025: Jabatan Perangkaan Malaysia (DOSM) akan mempengerusikan Jawatankuasa Sistem Statistik Komuniti ASEAN Ke-15 (ACSS15) yang bertujuan untuk memperkukuh kerjasama statistik ke arah pembangunan serantau yang mampan.

Kerajaan Malaysia telah mengisytiharkan 20 Oktober sebagai Hari Statistik Negara (MyStats Day), dengan tema 'Statistik Nadi Kehidupan.' Sementara itu, Hari Statistik Dunia Keempat akan disambut pada 20 Oktober 2025 dengan tema '*Driving Change with Quality Statistics and Data for Everyone*'.

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

Announcement

ASEAN-Malaysia 2025 Chairmanship: the Department of Statistics Malaysia (DOSM) will chair the 15th ASEAN Community Statistical System Committee (ACSS15) which aim to strengthen the statistical cooperation towards sustainable regional development.

*The Government of Malaysia has declared October 20th as National Statistics Day (MyStats Day), with the theme 'Statistics is the Essence of Life.' Meanwhile, the Fourth World Statistics Day will be celebrated on 20 October 2025, with the theme '*Driving Change with Quality Statistics and Data for Everyone*'.*

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JABATAN PERANGKAAN MALAYSIA
DEPARTMENT OF STATISTICS MALAYSIA

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Banci Perkhidmatan dan Peralatan Minyak & Gas (OGSE) 2024 diterbitkan buat julung kali oleh Jabatan Perangkaan Malaysia (DOSM). Ianya membentangkan statistik yang diperoleh daripada Banci OGSE yang dilaksanakan pada tahun 2024 bagi tahun rujukan 2023. Banci ini merangkumi semua pertubuhan berdaftar dan terlibat dalam aktiviti OGSE meliputi sektor Perindustrian (Perlombongan dan pengkuarian, Pembuatan dan Pembinaan) serta sektor Perkhidmatan. Pertubuhan dikelaskan mengikut Piawaian Klasifikasi Industri Malaysia (MSIC) 2008 Versi 1.0, berdasarkan *International Standard Industrial Classification of All Economic Activities (ISIC), Rev. 4, 2008*.

Statistik utama berkaitan dengan bilangan pertubuhan, output kasar, input perantaraan, nilai ditambah, pekerja, gaji & upah dan harta tetap dilaporkan dalam penerbitan ini di peringkat nasional dan wilayah. Selain itu, statistik berkaitan dengan Perusahaan Mikro, Kecil dan Sederhana (PMKS), aktiviti teras OGSE dan Alam Sekitar, Sosial dan Tadbir Urus (ESG) yang menjadi indikator Pelan Hala Tuju Industri OGSE Kebangsaan bagi tempoh 2021-2030 turut disediakan. Statistik ini boleh digunakan oleh agensi kerajaan, ahli ekonomi, ahli akademik, sektor swasta dan individu bagi tujuan membuat perancangan dan penggubalan dasar, analisis ekonomi, unjuran serta pembangunan perniagaan.

Penerbitan ini dibahagikan kepada lima bahagian. Bahagian pertama mengandungi sorotan utama statistik OGSE, diikuti ringkasan penemuan dalam bahagian kedua. Seterusnya, bahagian ketiga menampilkan rencana, sementara bahagian keempat menyediakan jadual statistik terperinci. Bahagian kelima merangkumi aspek teknikal, termasuk skop dan liputan, konsep dan definisi serta pemboleh ubah utama.

Jabatan Perangkaan Malaysia (DOSM) merakamkan setinggi-tinggi penghargaan atas kerjasama semua pihak yang telah menyediakan data yang diperlukan dan menyumbang kepada kejayaan penerbitan ini. Maklum balas dan cadangan untuk menambah baik laporan pada masa hadapan adalah amat dihargai.

DATO' SRI DR. MOHD UZIR MAHIDIN

Ketua Perangkawan Malaysia

Mac 2025

The Oil & Gas Services and Equipment (OGSE) Census 2024 is the inaugural publication from the Department of Statistics Malaysia. It presents statistics obtained from the OGSE Census 2024 for the reference year 2023. This census encompasses all registered establishments engaged in OGSE activities across, spanning the Industrial sectors (Mining and quarrying, Manufacturing and Construction) and Services sector. Establishments are classified according to the Malaysia Standard Industrial Classification (MSIC) 2008 Version 1.0, based on the International Standard Industrial Classification of All Economic Activities (ISIC), Rev. 4, 2008.

Key statistics related to the number of establishments, gross output, intermediate input, value added, persons engaged, salaries & wages, and fixed assets are reported in this publication at the national and regional levels. Additionally, statistics related to Micro, Small and Medium Enterprises (MSMEs), core activities of OGSE and Environmental, Social, and Governance (ESG) which are indicators of the National OGSE Industry Blueprint (2021-2030). These statistics can be used by government agencies, economists, academicians, private sectors, and individuals to plan and formulate policies, conduct economic analyses, make projections, and business development.

This publication is divided into five sections. The first section presents the main highlights of OGSE statistics, followed by a summary of findings in the second section. The third section includes articles, while the fourth section provides detailed statistical tables. The fifth section covers technical aspects, including scope and coverage, concepts and definitions, as well as key variables.

The Department of Statistics Malaysia (DOSM) gratefully acknowledges the cooperation of all parties who provided the required data and contributed to the success of this publication. Feedback and suggestions for improving future reports are highly appreciated.

DATO' SRI DR. MOHD UZIR MAHIDIN

Chief Statistician Malaysia

March 2025

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SOROTAN UTAMA *MAIN HIGHLIGHTS*





KEMENTERIAN EKONOMI
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BANCI PERKHIDMATAN DAN PERALATAN MINYAK & GAS 2024

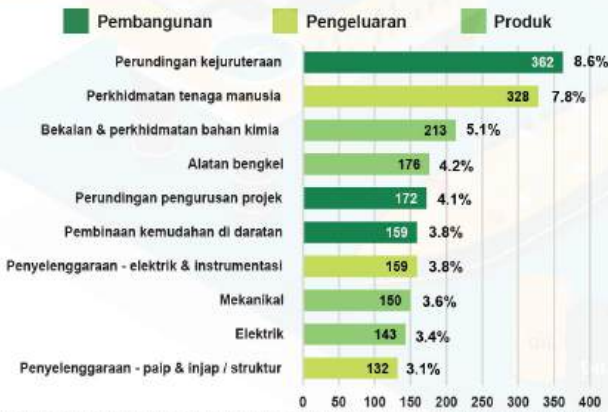
STATISTIK UTAMA



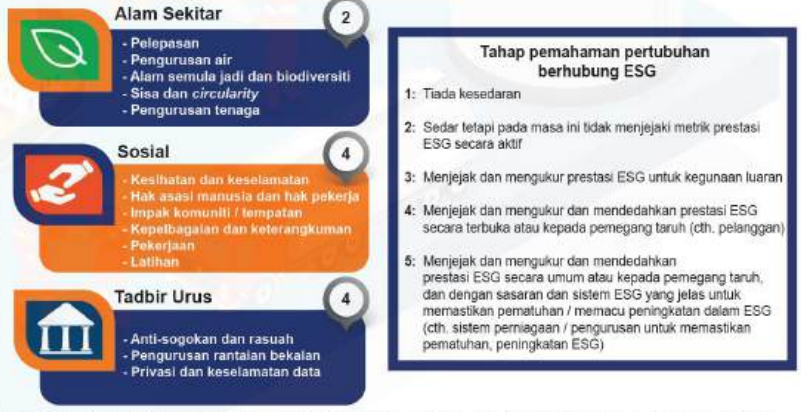
BILANGAN PERTUBUHAN DAN OUTPUT KASAR MENGIKUT SEKTOR DAN PMKS



10 AKTIVITI TERAS OGSE YANG TERTINGGI

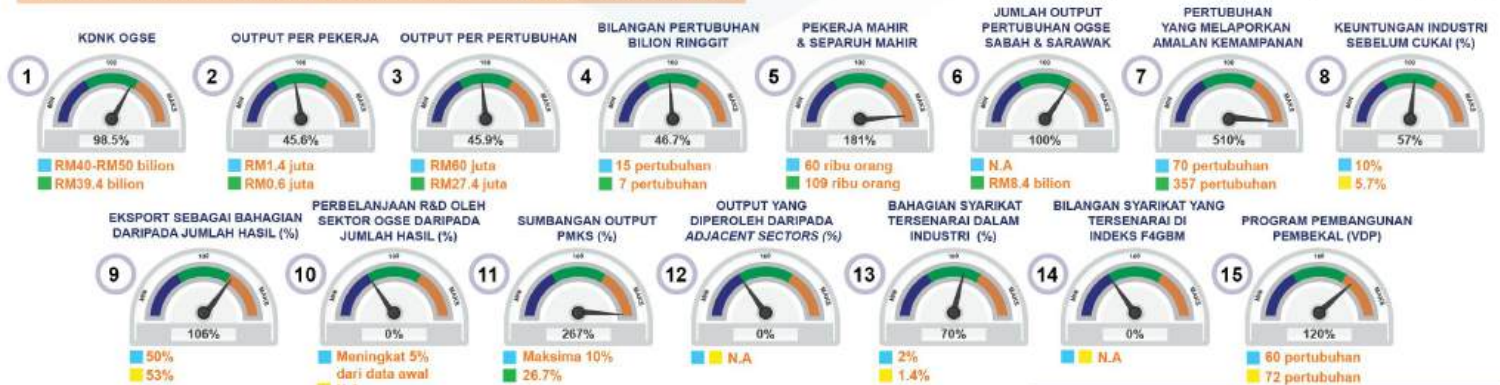


ALAM SEKITAR, SOSIAL DAN TADBIR URUS (ESG)



PRESTASI SASARAN PELAN HALA TUJU INDUSTRI OGSE KEBANGSAAN 2021-2030

SASARAN 2030 | BANCI OGSE 2024 (TAHUN RUJUKAN 2023) | MPRC (I-OGSE)



Nota: N/A: Tidak tersedia

Sumber: Banci Perkhidmatan dan Peralatan Minyak & Gas 2024
Jabatan Perangkaan Malaysia (DOSM)



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DEPARTMENT OF STATISTICS MALAYSIA

OIL & GAS SERVICES AND EQUIPMENT (OGSE) CENSUS 2024

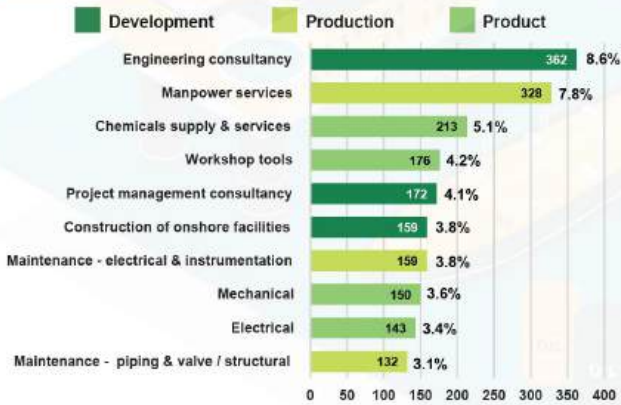
KEY STATISTICS



NUMBER OF ESTABLISHMENTS AND GROSS OUTPUT BY SECTOR AND MSMEs



10 HIGHEST CORE ACTIVITIES OF OGSE

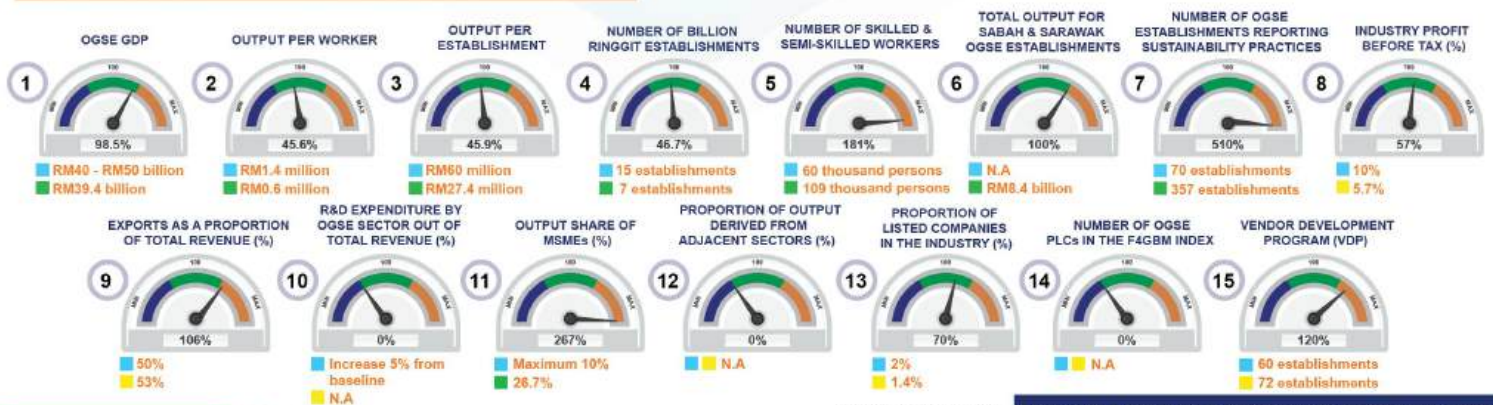


ENVIRONMENTAL, SOCIAL AND GOVERNANCE (ESG)



PERFORMANCE OF NATIONAL OGSE INDUSTRY BLUEPRINT 2021-2030

TARGET 2030 OGSE CENSUS 2024 (REFERENCE YEAR 2023) MPRC (i-OGSE)



Note: N.A.: Not available

Source : Oil & Gas Services And Equipment (OGSE) Census 2024
Department of Statistics Malaysia (DOSM)



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RINGKASAN PENEMUAN *SUMMARY OF FINDINGS*



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1. Pengenalan

Aktiviti Perkhidmatan dan Peralatan Minyak & Gas (OGSE) merujuk kepada pertubuhan yang menyediakan perkhidmatan, peralatan dan sokongan teknikal kepada industri minyak dan gas, berbeza dengan pertubuhan di sektor Perlombongan minyak dan gas asli yang bertanggungjawab ke atas aktiviti penerokaan, pengeluaran, penapisan dan penjualan minyak mentah serta gas asli. Dari segi model perniagaan, OGSE menjana pendapatan melalui penyediaan perkhidmatan dan peralatan kepada syarikat minyak dan gas, manakala syarikat minyak dan gas memperoleh keuntungan daripada penjualan minyak mentah, gas asli dan produk berkaitan.

Pada 27 April 2021, Pelan Hala Tuju Industri Perkhidmatan dan Peralatan Minyak & Gas Kebangsaan 2021-2030 (*OGSE Blueprint*) telah dilancarkan dan dipertanggungjawabkan kepada Malaysia Petroleum Resources Corporation (MPRC) bagi memantau prestasi dan memastikan industri OGSE tempatan kekal berdaya saing di pasaran global.

Salah satu inisiatif utama dalam *OGSE Blueprint* ini adalah penubuhan *OGSE Industry Data Depository*, yang bertujuan untuk menyelaraskan dan mengemas kini pengumpulan data dalam industri ini. Dengan pengumpulan data yang lebih teratur, dasar dan perancangan yang lebih tepat dan berasaskan data dapat dirangka. Inisiatif ini akan memberi impak besar dalam memastikan aktiviti OGSE berkembang secara mampan dan berdaya saing.

Bagi menyokong inisiatif yang dilaksanakan, Banci OGSE julung kali diadakan tahun 2024 bertujuan untuk mengutip dan mengumpul data pertubuhan yang terlibat dalam industri ini. Dapatan banci ini akan digunakan untuk menjadi penanda aras utama dalam menilai dan menjejaki perkembangan prestasi aktiviti OGSE di Malaysia dengan membekalkan data utama yang merangkumi statistik seperti output kasar, nilai ditambah, pekerja dan gaji & upah, serta peranan Perusahaan Mikro, Kecil dan Sederhana (PMKS).

2. Perkembangan Aktiviti Perkhidmatan dan Peralatan Minyak & Gas (OGSE)

Pada awal 1990-an hingga awal 2000-an, Malaysia mula memberi tumpuan kepada eksplorasi minyak, terutamanya di lapangan minyak luar pesisir di Laut China Selatan. Syarikat milik kerajaan, Petroliaam Nasional Berhad (PETRONAS), yang ditubuhkan pada tahun 1974, memainkan peranan utama dalam industri ini. Pada tahun 1990-an, PETRONAS mula mengembangkan pengaruhnya di peringkat antarabangsa dengan memperoleh hak penerokaan di negara seperti Sudan, Rusia dan Turkmenistan. Pada tempoh ini, Malaysia mula dikenali sebagai pemain utama dalam pasaran minyak dan gas global.

Antara tahun 2000-an dan 2010-an, aktiviti OGSE Malaysia terus berkembang dipacu oleh kemajuan teknologi dan peningkatan pelaburan. Malaysia memperkenalkan teknik eksplorasi laut dalam dan kaedah pemulihan minyak yang dipertingkatkan (EOR) yang membolehkan negara mengakses sumber-sumber yang lebih sukar dicapai. Di samping itu, Malaysia mula memberi tumpuan kepada pengeluaran gas asli, khususnya dengan pembangunan infrastruktur gas asli cecair (LNG), menjadikannya salah satu pengeksport LNG terbesar di dunia menjelang 2010-an. PETRONAS juga mula mempelbagaikan

portfolio perniagaannya melalui penglibatan dalam industri petrokimia, penapisan dan peruncitan gas asli, sekali gus dapat mengukuhkan aktiviti OGSE dalam kerangka ekonomi negara.

Namun, dari tahun 2014 hingga 2020, aktiviti OGSE Malaysia berhadapan dengan turun naik harga minyak global yang ketara. Harga minyak jatuh merudum pada 2014 dan sekali lagi pada 2020 akibat ketegangan geopolitik, kemelesetan ekonomi dan pandemik COVID-19. Bagi mendepani cabaran semasa, pertubuhan yang terlibat dalam industri ini mula beralih kepada digitalisasi dan automasi dalam eksplorasi dan pengeluaran untuk mengurangkan kos operasi. Pada masa yang sama, aktiviti OGSE juga mula memberi tumpuan kepada Tenaga Boleh Baharu (TBB), seperti tenaga solar dan tenaga angin, sebagai sumber pendapatan alternatif untuk memenuhi matlamat kelestarian global.

Melihat ke hadapan, aktiviti OGSE di Malaysia dijangka akan memainkan peranan penting dalam perjalanan peralihan tenaga negara. Dengan perubahan permintaan tenaga global, Malaysia sedang mempelbagaikan campuran tenaga dan memberi tumpuan kepada pembangunan TBB sambil terus memanfaatkan sumber minyak dan gasnya. Aktiviti OGSE turut mendapat manfaat daripada dasar kerajaan yang memberi fokus kepada keperluan untuk mengurangkan karbon bagi memastikan aktiviti OGSE terus signifikan dalam landskap ekonomi negara.

Berdasarkan dapatan daripada Banci OGSE 2024 bagi tahun rujukan 2023, sebanyak 2,894 pertubuhan yang direkodkan terlibat dalam aktiviti OGSE, dengan jumlah output kasar yang dihasilkan mencapai RM79.2 bilion. Nilai input perantaraan mencatatkan RM39.8 bilion, sementara nilai ditambah yang dijana berjumlah RM39.4 bilion. Pada masa yang sama, gaji & upah merekodkan RM6.8 bilion, dengan jumlah pekerja seramai 123,288 orang seperti di **Paparan 1**.

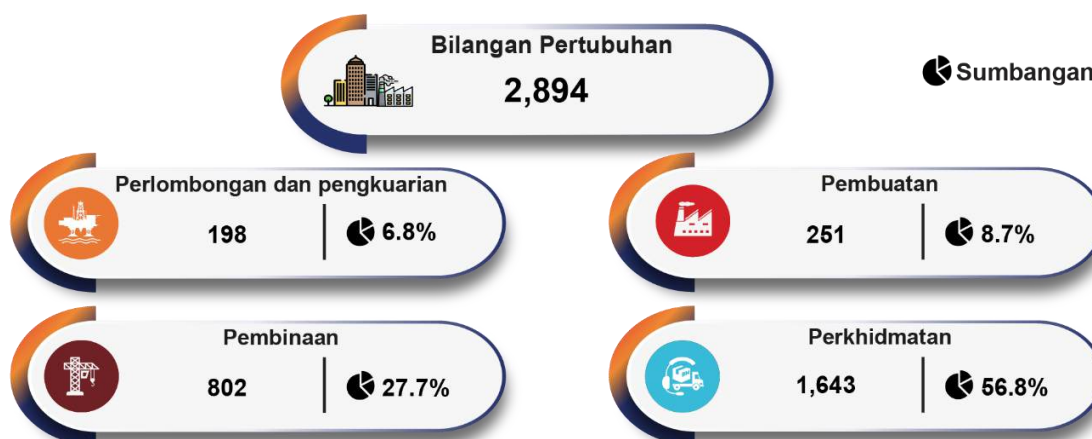
Paparan 1: Statistik Utama Aktiviti OGSE, 2023



3. Bilangan Pertubuhan

Aktiviti OGSE merekodkan sebanyak 2,894 pertubuhan dengan sektor Perkhidmatan merupakan penyumbang terbesar iaitu 56.8 peratus (1,643 pertubuhan) pada tahun 2023. Ini diikuti dengan sektor Pembinaan dan Pembuatan yang masing-masing menyumbang sebanyak 27.7 peratus (802 pertubuhan) dan 8.7 peratus (251 pertubuhan). Sementara itu, sektor Perlombongan dan pengkuarian menyumbang 6.8 peratus atau bersamaan 198 pertubuhan seperti di **Paparan 2**.

Paparan 2: Bilangan Pertubuhan mengikut Sektor, 2023



4. Output Kasar

Output kasar bagi pertubuhan yang terlibat dengan aktiviti OGSE mencatatkan sebanyak RM79.2 bilion pada tahun 2023. Sektor Perlombongan dan pengkuarian mendominasi dengan sumbangan sebanyak 35.5 peratus atau RM28.1 bilion kepada output kasar, diikuti oleh sektor Perkhidmatan, yang menyumbang 32.5 peratus bersamaan RM25.8 bilion. Sementara itu, sektor Pembinaan dan Pembuatan masing-masing merekodkan sumbangan sebanyak 19.4 peratus (RM15.4 bilion) dan 12.5 peratus (RM9.9 bilion) seperti yang ditunjukkan di **Paparan 3**.

Paparan 3: Output Kasar mengikut Sektor, 2023



5. Input Perantaraan

Input perantaraan mencatatkan jumlah sebanyak RM39.8 bilion pada tahun 2023. Sektor Perkhidmatan merekodkan nilai tertinggi iaitu RM14.2 bilion dengan sumbangan sebanyak 35.6 peratus kepada nilai keseluruhan input perantaraan. Seterusnya, sektor Pembinaan mencatatkan nilai RM10.6 bilion (26.6%) manakala, sektor Perlombongan dan pengkuarian merekodkan RM8.4 bilion (21.1%) diikuti oleh sektor Pembuatan sebanyak RM6.7 bilion (16.7%) seperti di **Paparan 4**.

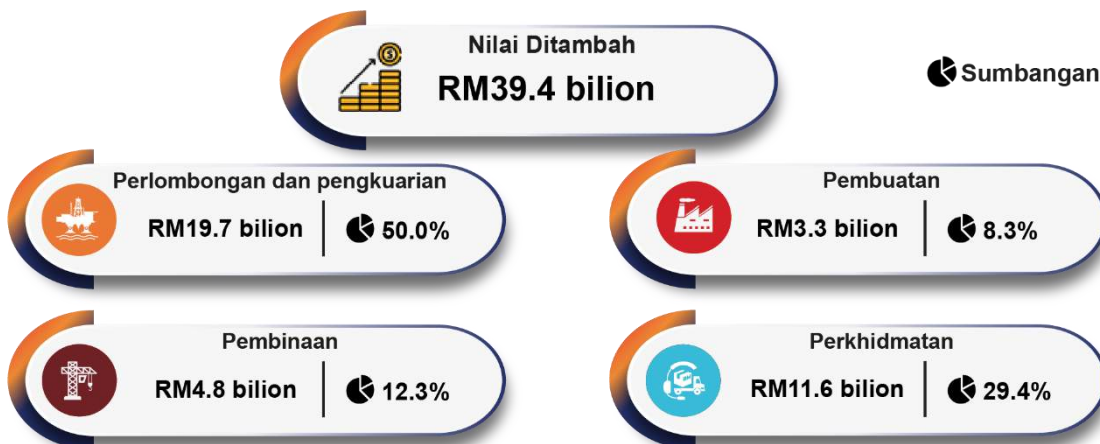
Paparan 4: Input Perantaraan mengikut Sektor, 2023



6. Nilai Ditambah

Nilai ditambah bagi aktiviti OGSE berjumlah RM39.4 bilion pada tahun 2023 dengan sektor Perlombongan dan pengkuarian menyumbang 50.0 peratus (RM19.7 bilion) daripada jumlah keseluruhan. Seterusnya, sektor Perkhidmatan merekodkan sebanyak 29.4 peratus (RM11.6 bilion). Sementara itu, sektor Pembinaan dan Pembuatan masing-masing mencatatkan 12.3 peratus (RM4.8 bilion) dan 8.3 peratus (RM3.3 bilion) seperti di **Paparan 5**.

Paparan 5: Nilai Ditambah mengikut Sektor, 2023



7. Pekerja dan Gaji & Upah

7.1 Pekerja dan Gaji & Upah mengikut Sektor

Jumlah pekerja dalam aktiviti industri OGSE mencatatkan seramai 123,288 orang pada tahun 2023. Sektor Pembinaan merekodkan bilangan pekerja tertinggi dengan 50,696 orang (41.1%), diikuti oleh sektor Perkhidmatan dengan 48,731 orang (39.5%). Sektor Pembuatan melibatkan 12,365 orang (10.0%), manakala sektor Perlombongan dan pengkuarian mencatatkan seramai 11,496 orang (9.3%) seperti di **Paparan 6**.

Sementara itu, jumlah gaji & upah merekodkan nilai sebanyak RM6.8 bilion. Sektor Perkhidmatan mencatatkan bayaran tertinggi, berjumlah RM2.8 bilion (41.6%), diikuti oleh sektor Pembinaan dengan RM2.1 bilion (30.8%). Sektor Perlombongan dan pengkuarian sebanyak RM1.2 bilion (17.2%), manakala sektor Pembuatan merekodkan RM0.7 bilion (10.4%).

Dari segi purata gaji bulanan, sektor Perlombongan dan pengkuarian mencatatkan jumlah tertinggi dengan RM8,464. Sektor Perkhidmatan mencatat purata gaji bulanan sebanyak RM4,865, diikuti oleh sektor Pembuatan dengan RM4,789 dan sektor Pembinaan dengan RM3,446.

Paparan 6: Pekerja dan Gaji & Upah mengikut Sektor, 2023



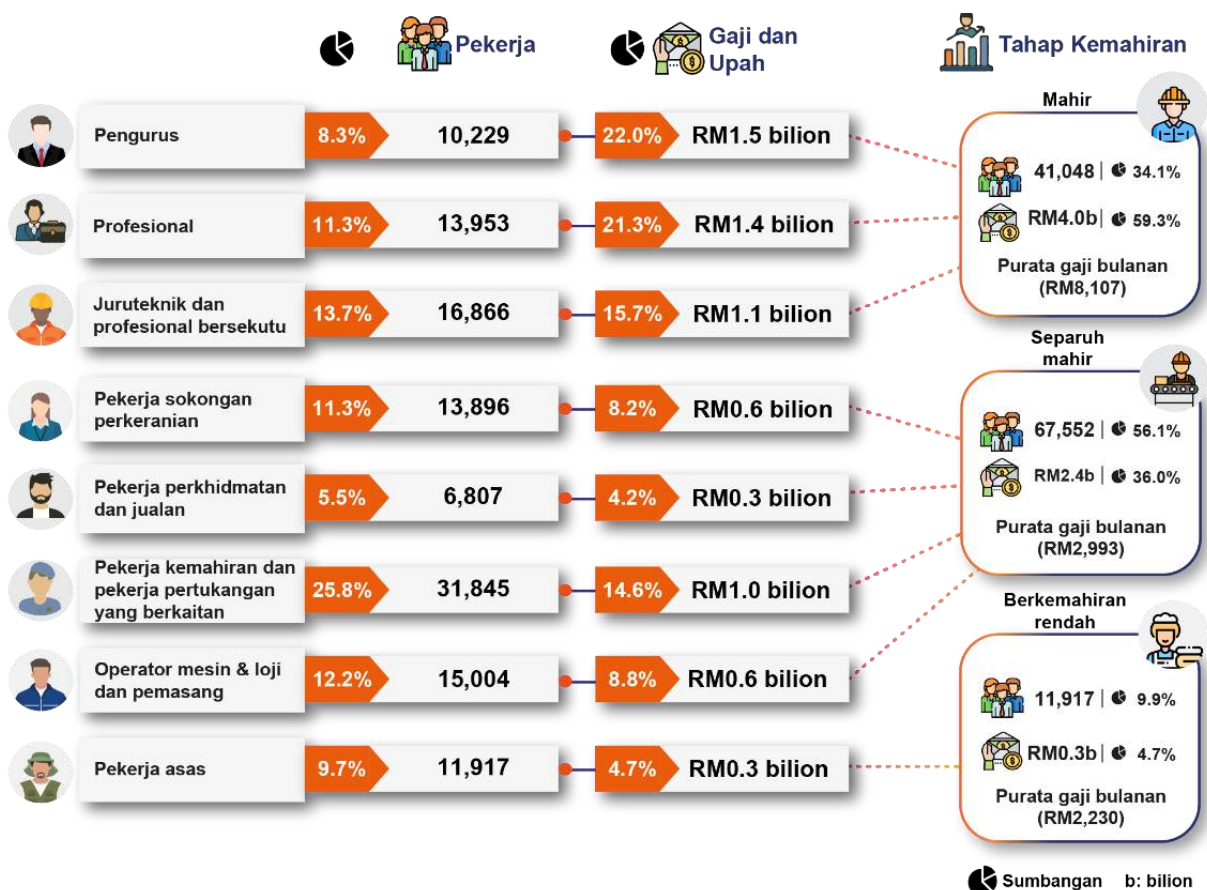
7.2 Pekerja dan Gaji & Upah mengikut Kategori dan Kemahiran

Kategori pekerja tertinggi disumbangkan oleh Pekerja kemahiran dan pekerja pertukangan yang berkaitan dengan jumlah sebanyak 31,845 orang (25.8%). Ini diikuti oleh Juruteknik dan profesional bersekutu, 16,866 orang (13.7%) dan Operator mesin & loji dan pemasang, 15,004 orang (12.2%).

Sementara itu, Pengurus merekodkan gaji & upah yang tertinggi berjumlah RM1.5 bilion (22.0%). Ini disusuli dengan Profesional serta Juruteknik dan profesional bersekutu, yang masing-masing mencatatkan RM1.4 bilion (21.3%) dan RM1.1 bilion (15.7%).

Bagi tahap kemahiran, pekerja Separuh mahir merekodkan jumlah pekerja tertinggi sebanyak 67,552 orang (56.1%) dan purata gaji bulanan sebanyak RM2,993. Seterusnya, pekerja Mahir berjumlah 41,048 orang (34.1%) dengan purata gaji RM8,107 sebulan. Manakala, pekerja Berkemahiran rendah mencatatkan 11,917 pekerja (9.9%) dengan purata gaji RM2,230 sebulan seperti di **Paparan 7**.

Paparan 7: Pekerja dan Gaji & Upah mengikut Kategori dan Kemahiran, 2023

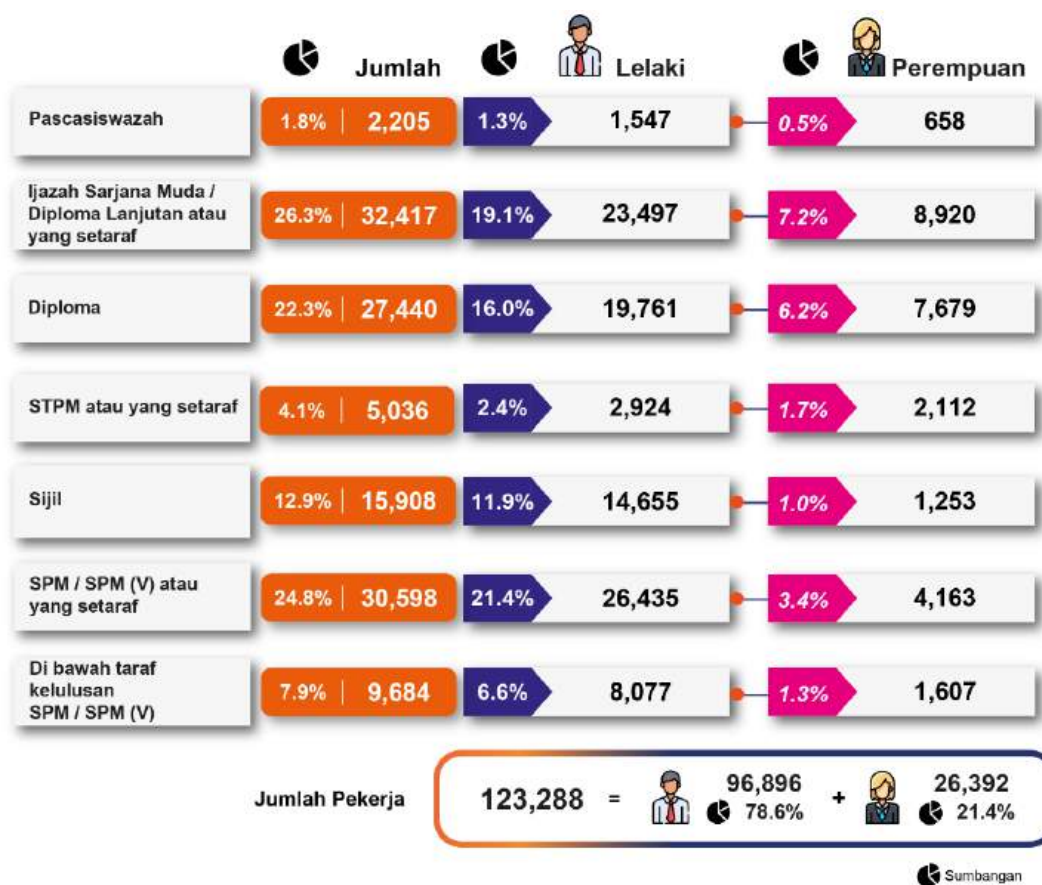


7.3 Pekerja mengikut Sijil Tertinggi Diperoleh

Pekerja berkelulusan ijazah sarjana muda / diploma lanjutan atau yang setaraf mempunyai jumlah pekerja yang tertinggi iaitu seramai 32,417 orang dengan sumbangan 26.3 peratus. Seterusnya, bagi berkelulusan SPM / SPM (V) atau yang setaraf dengan jumlah 30,598 pekerja bersamaan dengan 24.8 peratus sumbangan. Ini diikuti oleh pekerja berkelulusan diploma mencatatkan jumlah pekerja sebanyak 27,440 atau 22.3 peratus sumbangan.

Aktiviti OGSE didominasi oleh lelaki yang menyumbang 78.6 peratus atau 96,896 orang kepada jumlah pekerja. Sementara itu, perempuan mencatatkan sebanyak 21.4 peratus atau 26,392 orang pada tahun 2023 seperti di **Paparan 8**.

Paparan 8: Pekerja mengikut Sijil Tertinggi Diperoleh, 2023



8. Harta Tetap

Nilai harta tetap bagi pertubuhan yang terlibat dengan aktiviti OGSE pada tahun 2023 berjumlah RM111.0 bilion. Sektor Perlombongan dan pengkuarian merekodkan nilai Harta tetap tertinggi dengan sumbangan 71.6 peratus atau RM79.5 bilion, diikuti oleh Sektor Pembinaan sebanyak RM2.8 bilion (2.5%). Sementara itu, sektor Perkhidmatan merekodkan RM26.5 bilion (23.9%), manakala sektor Pembuatan mencatatkan nilai sebanyak RM2.2 bilion (2.0%) seperti di **Paparan 9**.

Paparan 9: Harta Tetap mengikut Sektor, 2023



9. Prestasi mengikut Wilayah

Wilayah di Malaysia merujuk kepada Semenanjung Malaysia, Sabah, dan Sarawak. Semenanjung Malaysia terdiri daripada 11 negeri iaitu Johor, Kedah, Kelantan, Melaka, Negeri Sembilan, Pahang, Pulau Pinang, Perak, Perlis, Selangor, dan Terengganu, serta tiga Wilayah Persekutuan yang meliputi Kuala Lumpur, Putrajaya, dan Labuan. Dapatan daripada sektor Pembuatan, Pembinaan serta Perlombongan dan pengkuarian dikelaskan sebagai segmen Perindustrian manakala dapatan daripada sektor Perkhidmatan dikategorikan sebagai segmen Perkhidmatan. Statistik utama mengikut wilayah dan segmen seperti di **Paparan 10**.

9.1 Semenanjung Malaysia

Bilangan pertubuhan di Semenanjung Malaysia mencatatkan jumlah tertinggi sebanyak 2,420 pertubuhan atau 83.7 peratus, yang mana segmen Perindustrian dan segmen Perkhidmatan masing-masing merekodkan 1,061 dan 1,359 pertubuhan. Output kasar yang dihasilkan oleh wilayah ini berjumlah RM70.8 bilion, yang mana segmen Perindustrian mencatatkan output tertinggi sebanyak RM48.8 bilion manakala segmen Perkhidmatan dengan RM22.0 bilion.

Semenanjung Malaysia terus mendominasi nilai input perantaraan berjumlah RM34.9 bilion atau 87.8 peratus dari jumlah keseluruhan. Segmen Perindustrian kekal sebagai penyumbang tertinggi sebanyak RM22.5 bilion, diikuti oleh segmen Perkhidmatan RM12.4 bilion. Nilai ditambah yang disumbangkan di wilayah Semenanjung Malaysia sebanyak RM35.9 bilion atau 91.0 peratus dengan segmen Perindustrian merekodkan RM26.2 bilion berbanding RM9.6 bilion oleh segmen Perkhidmatan.

Jumlah pekerja di Semenanjung Malaysia merekodkan 98,647 orang yang menyumbang 80.0 peratus kepada jumlah keseluruhan pekerja. Sebanyak 60,821 orang bekerja dalam segmen Perindustrian, manakala 37,826 orang berada dalam segmen Perkhidmatan. Gaji & upah yang dibayar di Semenanjung Malaysia berjumlah RM5.5 bilion atau 81.0 peratus, dengan segmen Perindustrian menyumbang RM3.2 bilion dan segmen Perkhidmatan sebanyak RM2.3 bilion.

9.2 Sabah

Sabah mencatatkan 127 pertubuhan atau 4.4 peratus, dengan 74 pertubuhan berada di segmen Perkhidmatan manakala 53 pertubuhan di segmen Perindustrian. Output kasar yang dihasilkan berjumlah RM1.4 bilion atau 1.8 peratus, dengan segmen Perkhidmatan dan segmen Perindustrian merekodkan nilai yang sama iaitu RM0.7 bilion.

Sabah merekodkan jumlah input perantaraan sebanyak RM0.9 bilion atau 2.1 peratus, dengan RM0.5 bilion disumbangkan oleh segmen Perindustrian manakala RM0.4 bilion daripada segmen Perkhidmatan. Nilai ditambah yang disumbangkan oleh wilayah ini berjumlah RM0.6 bilion atau 1.4 peratus, yang mana segmen Perindustrian dan segmen Perkhidmatan masing-masing mencatatkan RM0.2 bilion dan RM0.4 bilion.

Jumlah pekerja di Sabah adalah seramai 6,579 orang atau 5.4 peratus, dengan 3,781 orang berada dalam segmen Perkhidmatan, manakala 2,798 orang bekerja dalam segmen Perindustrian. Gaji & upah yang dibayar di Sabah berjumlah RM0.2 bilion atau 3.3 peratus, dengan segmen Perkhidmatan dan segmen Perindustrian merekodkan nilai sebanyak RM0.1 bilion.

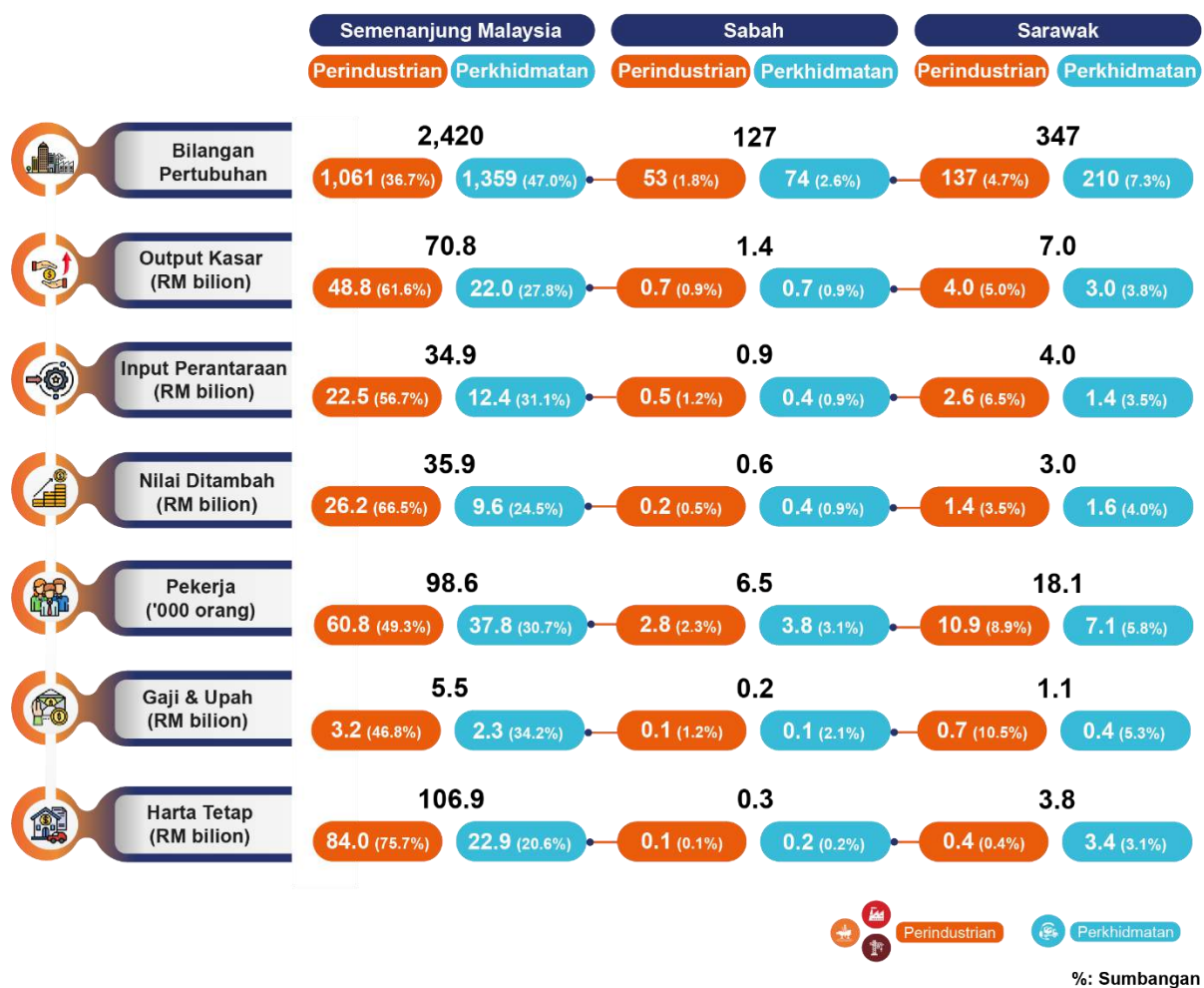
9.3 Sarawak

Sarawak mencatatkan sebanyak 347 pertubuhan atau 12.0 peratus, meliputi 137 pertubuhan yang disumbangkan oleh segmen Perindustrian dan 210 pertubuhan oleh segmen Perkhidmatan. Output kasar yang dihasilkan berjumlah RM7.0 bilion atau 8.8 peratus, yang mana segmen Perindustrian menjana output sebanyak RM4.0 bilion manakala segmen Perkhidmatan sebanyak RM3.0 bilion.

Nilai input perantaraan merekodkan sebanyak RM4.0 bilion atau 10.0 peratus, disumbangkan oleh segmen Perindustrian berjumlah RM2.6 bilion manakala RM1.4 bilion daripada segmen Perkhidmatan. Nilai ditambah yang dicatatkan oleh Sarawak sebanyak RM3.0 bilion atau 7.5 peratus, dengan RM1.4 bilion daripada segmen Perindustrian dan RM1.6 bilion daripada segmen Perkhidmatan.

Jumlah pekerja di Sarawak adalah seramai 18,062 orang atau 14.7 peratus, iaitu 10,938 orang berada dalam segmen Perindustrian, manakala 7,124 orang bekerja dalam segmen Perkhidmatan. Gaji & upah yang dibayar berjumlah RM1.1 bilion atau 15.8 peratus, dengan segmen Perindustrian menyumbang RM0.7 bilion dan segmen Perkhidmatan sebanyak RM0.4 bilion.

Paparan 10: Statistik Utama mengikut Wilayah dan Segmen, 2023

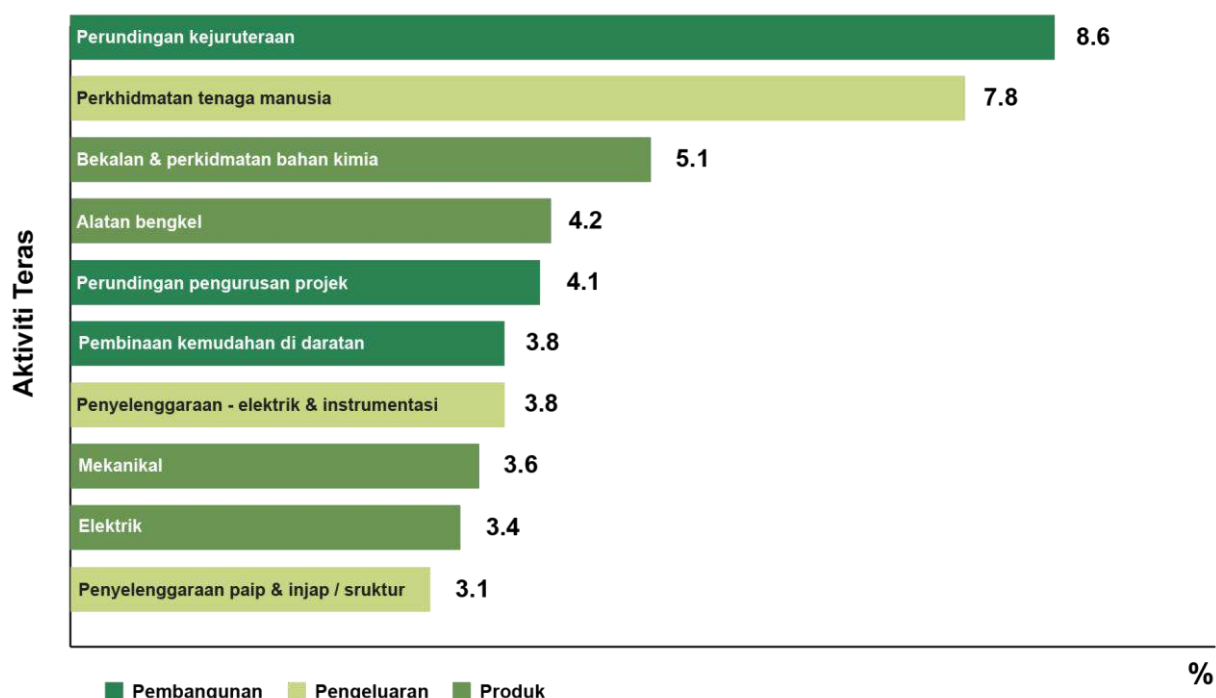


10. Aktiviti Teras OGSE

Aktiviti teras OGSE merujuk kepada kategori kerja yang terlibat dalam pembekalan barangan dan perkhidmatan kepada pemegang lesen yang dianugerahkan kontrak oleh PETRONAS. Sebanyak 56 aktiviti teras telah dikenal pasti dengan lima kumpulan utama, iaitu Penerokaan, Pembangunan, Pengeluaran, *Decommissioning* dan Produk.

Berdasarkan banci ini, terdapat 10 aktiviti teras tertinggi yang menyumbang hampir 50.0 peratus telah dikenal pasti. Aktiviti perundingan kejuruteraan merekodkan penglibatan tertinggi dengan sumbangan sebanyak 8.6 peratus. Ini diikuti oleh aktiviti Perkhidmatan tenaga manusia dan Bekalan & perkhidmatan bahan kimia dengan masing-masing menyumbang 7.8 peratus dan 5.1 peratus kepada keseluruhan aktiviti teras OGSE seperti di **Paparan 11**.

Paparan 11: 10 Aktiviti Teras OGSE yang Tertinggi, 2023



11. Pemahaman dan Kesedaran Alam Sekitar, Sosial dan Tadbir Urus (ESG)

Prinsip Alam Sekitar, Sosial dan Tadbir Urus (ESG) diguna pakai bagi memastikan kelestarian jangka panjang serta mematuhi keperluan peraturan tempatan dan antarabangsa. Penggunaan ESG dalam sektor ini bukan sahaja bertujuan mengurangkan kesan alam sekitar tetapi juga untuk meningkatkan kesejahteraan sosial dan memperkukuh tadbir urus korporat. Tahap pemahaman dan kesedaran pertubuhan diukur berdasarkan skala 1 hingga 5 dengan perincian seperti berikut:

1. Tiada kesedaran
2. Sedar tetapi pada masa ini tidak menjejaki metrik prestasi ESG secara aktif
3. Menjejaki dan mengukur prestasi ESG untuk kegunaan luaran
4. Menjejaki dan mengukur dan mendedahkan prestasi ESG secara terbuka atau kepada pemegang taruh (cth. pelanggan)
5. Menjejaki dan mengukur dan mendedahkan prestasi ESG secara umum atau kepada pemegang taruh dan dengan sasaran dan sistem ESG yang jelas untuk memastikan pematuhan / memacu peningkatan dalam ESG (cth. sistem perniagaan)

11.1 Alam Sekitar

Pengukuran bagi elemen Alam sekitar merangkumi lima komponen utama iaitu Pelepasan, Pengurusan air, Alam semula jadi dan biodiversiti, Sisa dan *circularity*, serta Pengurusan tenaga. Berdasarkan elemen ini, majoriti pertubuhan mencatatkan tahap pemahaman pada skala 2 bagi komponen Pelepasan (30.7%). Pengurusan air (30.8%), Alam semula jadi dan biodiversiti (37.7%), Sisa dan *circularity* (35.7%), serta Pengurusan tenaga (29.5%) seperti di **Paparan 12**.

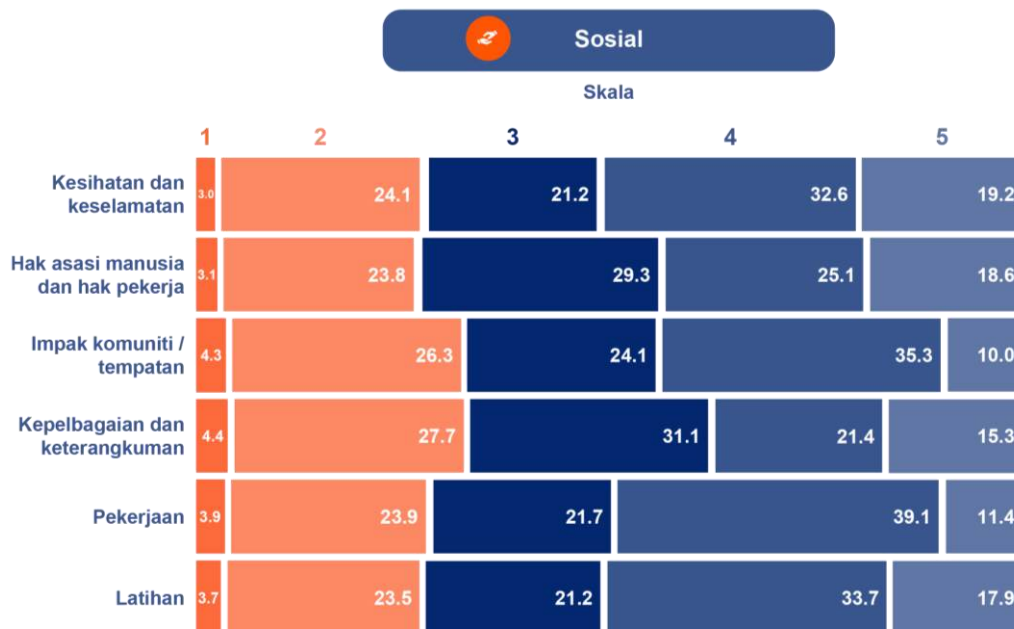
Paparan 12: Skala Peratusan Pemahaman dan Kesedaran ESG bagi Alam Sekitar, 2023



11.2 Sosial

Komponen di bawah elemen Sosial adalah Kesihatan dan keselamatan, Hak asasi manusia dan hak pekerja, Impak komuniti, Kepelbagaian dan keterangkuman, Pekerjaan dan Latihan. Bagi elemen Sosial, majoriti pertubuhan mencatatkan tahap pemahaman pada skala 4 daripada empat dari enam komponen. Pertubuhan yang merekodkan peratus sumbangan tertinggi bagi komponen Pekerjaan dengan 39.1 peratus, diikuti oleh Impak komuniti / tempat (35.3%), Kesihatan dan keselamatan (32.6%) dan Latihan (33.7%), Dua lagi komponen iaitu Kepelbagaian dan keterangkuman serta Hak asasi manusia dan hak pekerja masing-masing mencatatkan peratus sumbangan tertinggi dengan 31.1 peratus dan 29.3 peratus bagi skala 3 di **Paparan 13**.

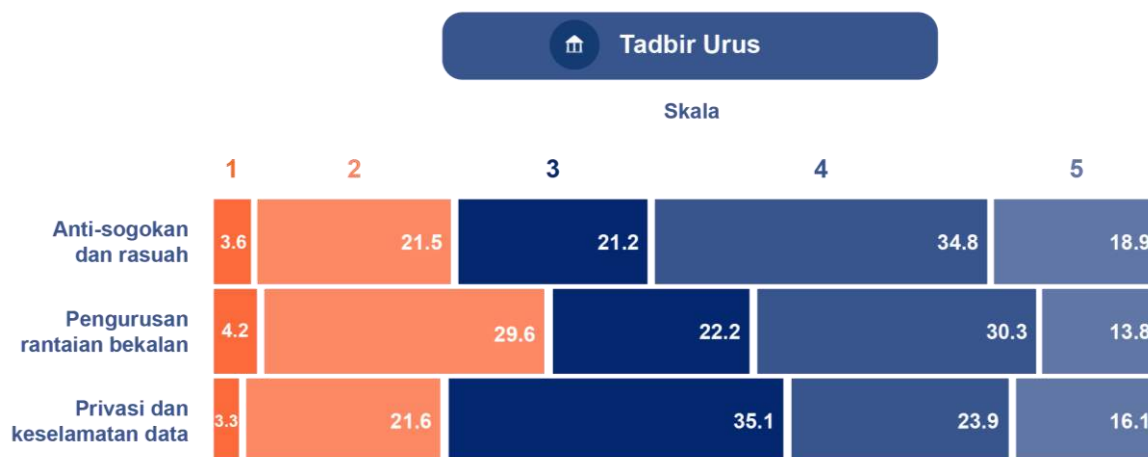
Paparan 13: Skala Peratusan Pemahaman dan Kesedaran ESG bagi Sosial, 2023



11.3 Tadbir Urus

Komponen di bawah elemen Tadbir urus adalah Anti-sogokan dan rasuah, Pengurusan rantaian bekalan, serta Privasi dan keselamatan data. Majoriti pertubuhan mencatatkan tahap pemahaman pada skala 4 bagi komponen Anti-sogokan dan rasuah (34.8%) dan Pengurusan rantaian bekalan (30.3%). Namun bagi komponen Privasi dan keselamatan data, peratusan tertinggi pertubuhan berada pada skala 3 (35.1%) seperti di **Paparan 14**.

Paparan 14: Skala Peratusan Pemahaman dan Kesedaran ESG bagi Tadbir Urus, 2023



1. Introduction

The Oil & Gas Services and Equipment (OGSE) activities refer to establishments that provide services, equipment and technical support to the oil and gas industry, distinguishing them from establishments in the Oil and natural gas mining sector, which are responsible for exploration, production, refining and sales of crude oil and natural gas activities. In terms of business models, OGSE generates revenue through the provision of services and equipment to oil and gas companies, whereas oil and gas companies derive profits from the sale of crude oil, natural gas and related products.

On 27 April 2021, the National OGSE Industry Blueprint 2021-2030 (OGSE Blueprint) was launched and entrusted to the Malaysia Petroleum Resources Corporation (MPRC) to monitor industry performance and ensure that local OGSE players remain competitive in the global market.

One of the key initiatives under the OGSE Blueprint is the establishment of the OGSE Industry Data Depository, aimed at coordinating and updating data collection within the industry. With more structured data collection, policies and planning can be developed with greater accuracy and data-driven decision-making. This initiative is expected to have a significant impact on ensuring sustainable and competitive growth of OGSE activities.

To support the initiatives that are implemented, the first-ever OGSE Census will be held in 2024, aiming to collect and gather data from organisations involved in this industry. The findings of this census will serve as a key benchmark for assessing and tracking the performance and development of the OGSE activities in Malaysia by providing essential data, including statistics on gross output, value added, persons engaged and salaries & wages, as well as the role of Micro, Small, and Medium Enterprises (MSMEs).

2. The Development of the Oil & Gas Services and Equipment (OGSE) Activities

From the early 1990s to the early 2000s, Malaysia began focusing on oil exploration, particularly in offshore fields within the South China Sea. Petroliaam Nasional Berhad (PETRONAS), a government-owned entity established in 1974, played a central role in the industry. In the 1990s, PETRONAS expanded its influence internationally, securing exploration rights in countries such as Sudan, Russia and Turkmenistan. During this period, Malaysia emerged as a key player in the global oil and gas market.

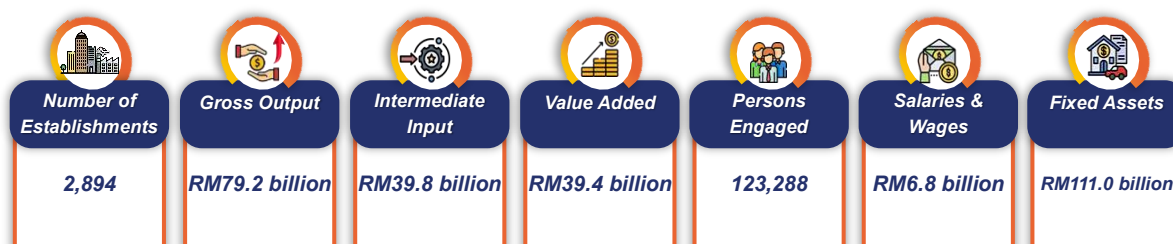
Between the 2000s and 2010s, Malaysia's OGSE activities continued to expand, driven by technological advancements and increased investments. The country introduced deep water exploration techniques and enhanced oil recovery (EOR) methods, enabling access to more challenging resources. Additionally, Malaysia shifted its focus towards natural gas production, particularly through the development of liquefied natural gas (LNG) infrastructure, solidifying its position as one of the world's largest LNG exporters by the 2010s. PETRONAS further diversified its business portfolio by expanding into petrochemicals, refining and natural gas retail, strengthening the OGSE activities within the national economy.

However, from 2014 to 2020, Malaysia's OGSE activities faced significant fluctuations in global oil prices. Oil prices plummeted in 2014 and again in 2020 due to geopolitical tensions, economic recessions and the COVID-19 pandemic. To address these challenges, organizations in the industry began shifting toward digitalisation and automation in exploration and production to reduce operational costs. At the same time, OGSE activities also began focusing on Renewable Energy (RE), such as solar and wind energy, as alternative sources of income to meet global sustainability goals.

Looking ahead, Malaysia's OGSE activities is expected to play a crucial role in the nation's energy transition journey. As global energy demand shifts, Malaysia is diversifying its energy mix and focusing on RE development while continuing to leverage its oil and gas resources. OGSE activities also benefit from government policies focused on carbon reduction, ensuring the sector's continued significance in the national economic landscape.

Based on the findings from the OGSE Census 2024 for the reference year 2023, a total of 2,894 establishments were engaged in OGSE activities, with the gross output produced reaching RM79.2 billion. The value of intermediate input was recorded at RM39.8 billion, while the value added generated amounted to RM39.4 billion. Concurrently, salaries & wages recorded RM6.8 billion, with a total of 123,288 persons engaged, as depicted in **Exhibit 1**.

Exhibit 1: Key Statistics of OGSE Activities, 2023



3. Number of Establishments

OGSE activities recorded a total of 2,894 establishments, with the Services sector was the largest contributor at 56.8 per cent (1,643 establishments) in 2023. This was followed by the Construction and Manufacturing sectors, each contributing 27.7 per cent (802 establishments) and 8.7 per cent (251 establishments), respectively. Meanwhile, the Mining and quarrying sector contributed 6.8 per cent or 198 establishments as shown in **Exhibit 2**.

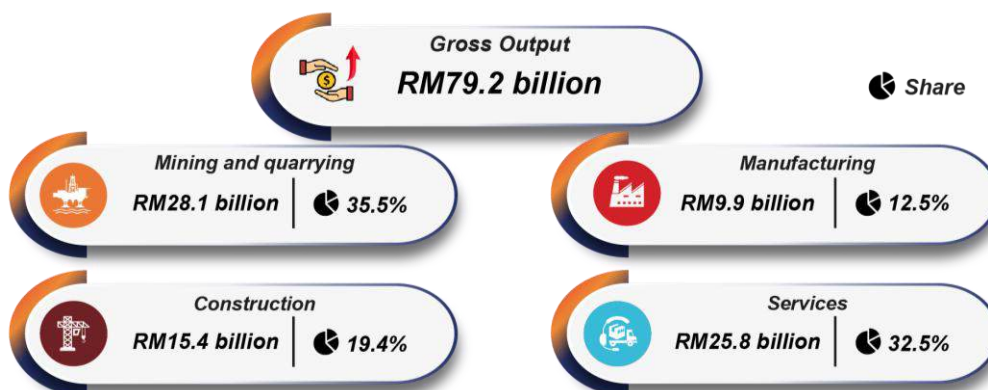
Exhibit 2: Number of Establishments by Sector, 2023



4. Gross Output

The gross output of establishments engaged in OGSE activities was recorded at RM79.2 billion in 2023. The Mining and quarrying sector dominated with a contribution of 35.5 per cent or RM28.1 billion, to the gross output, followed by the Services sector, which contributed 32.5 per cent equivalent to RM25.8 billion. Meanwhile, the Construction and manufacturing sectors each recorded contributions of 19.4 per cent (RM15.4 billion) and 12.5 per cent (RM9.9 billion) as shown in **Exhibit 3**.

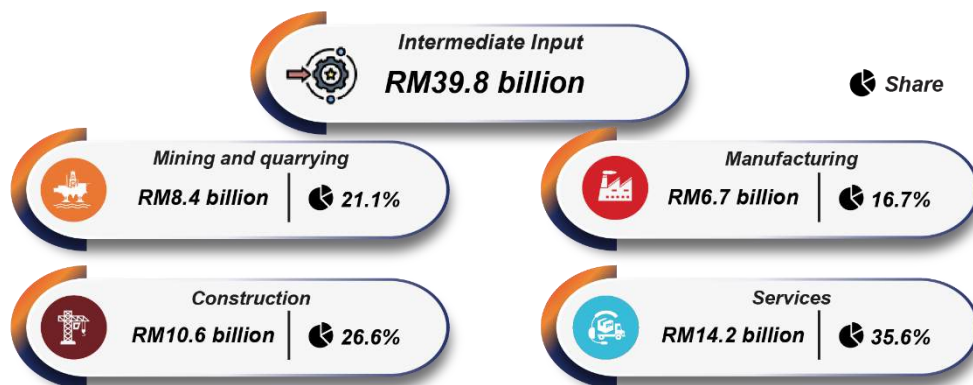
Exhibit 3: Gross Output by Sector, 2023



5. Intermediate Input

The intermediate input was recorded at RM39.8 billion in 2023. The Services sector registered the highest amount reaching RM14.2 billion, which accounted for 35.6 per cent of the overall intermediate input. This was followed by the Construction sector, with RM10.6 billion (26.6%), while the Mining and quarrying sector contributed RM8.4 billion (21.1%). Meanwhile, the Manufacturing sector reported RM6.7 billion (16.7%), as illustrated in **Exhibit 4**.

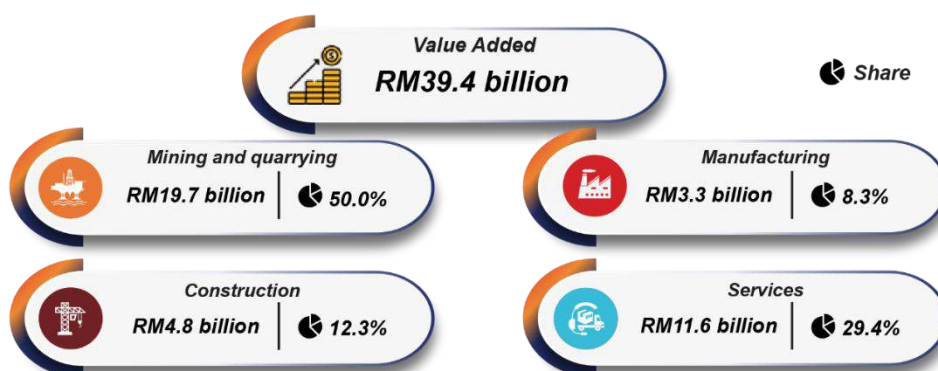
Exhibit 4: Intermediate Input by Sector, 2023



6. Value Added

The value added for OGSE activities was totalled at RM39.4 billion in 2023, with the Mining and quarrying sector contributing 50.0 per cent (RM19.7 billion) of the total. The Services sector followed with 29.4 per cent (RM11.6 billion) per cent. Meanwhile, the Construction and Manufacturing sectors registered 12.3 per cent (RM4.8 billion) and 8.3 per cent (RM3.3 billion), respectively, as presented in **Exhibit 5**.

Exhibit 5: Value Added by Sector, 2023



7. Persons Engaged and Salaries & Wages

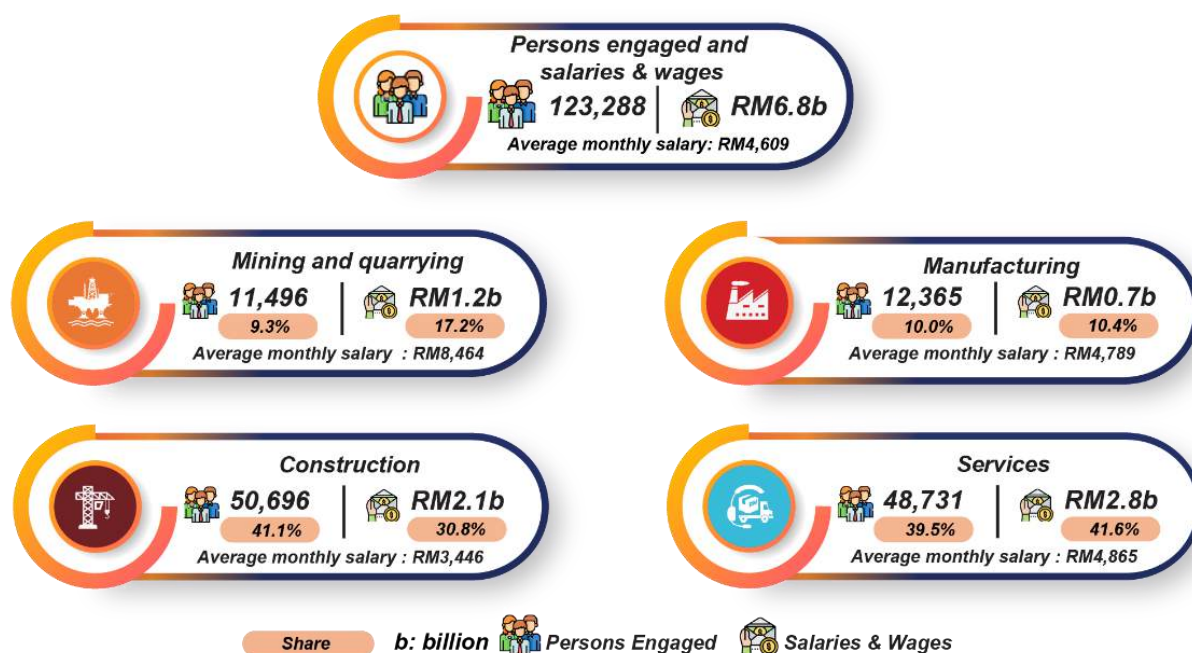
7.1 Persons Engaged and Salaries & Wages by Sector

The total number of persons engaged in the OGSE activities was recorded at 123,288 persons in 2023. The Construction sector recorded the highest number of persons engaged with 50,696 persons (41.1%), followed by the Services sector with 48,731 persons (39.5%). The Manufacturing sector involved 12,365 persons (10.0%), while the Mining and quarrying sector posted a total of 11,496 persons (9.3%), as shown in **Exhibit 6**.

In the meantime, salaries & wages were recorded at RM6.8 billion. The Services sector recorded the highest payment, totalled RM2.8 billion (41.6%), followed by the Construction sector with RM2.1 billion (30.8%). The Mining and quarrying sector received RM1.2 billion (17.2%), while the Manufacturing sector recorded RM0.7 billion (10.4%).

In terms of average monthly salary, the Mining and quarrying sector recorded the highest amount at RM8,464. The Services sector had an average monthly salary of RM4,865, followed by the Manufacturing sector with RM4,789 and the Construction sector with RM3,446.

Exhibit 6: Persons Engaged and Salaries & Wages by Sector, 2023



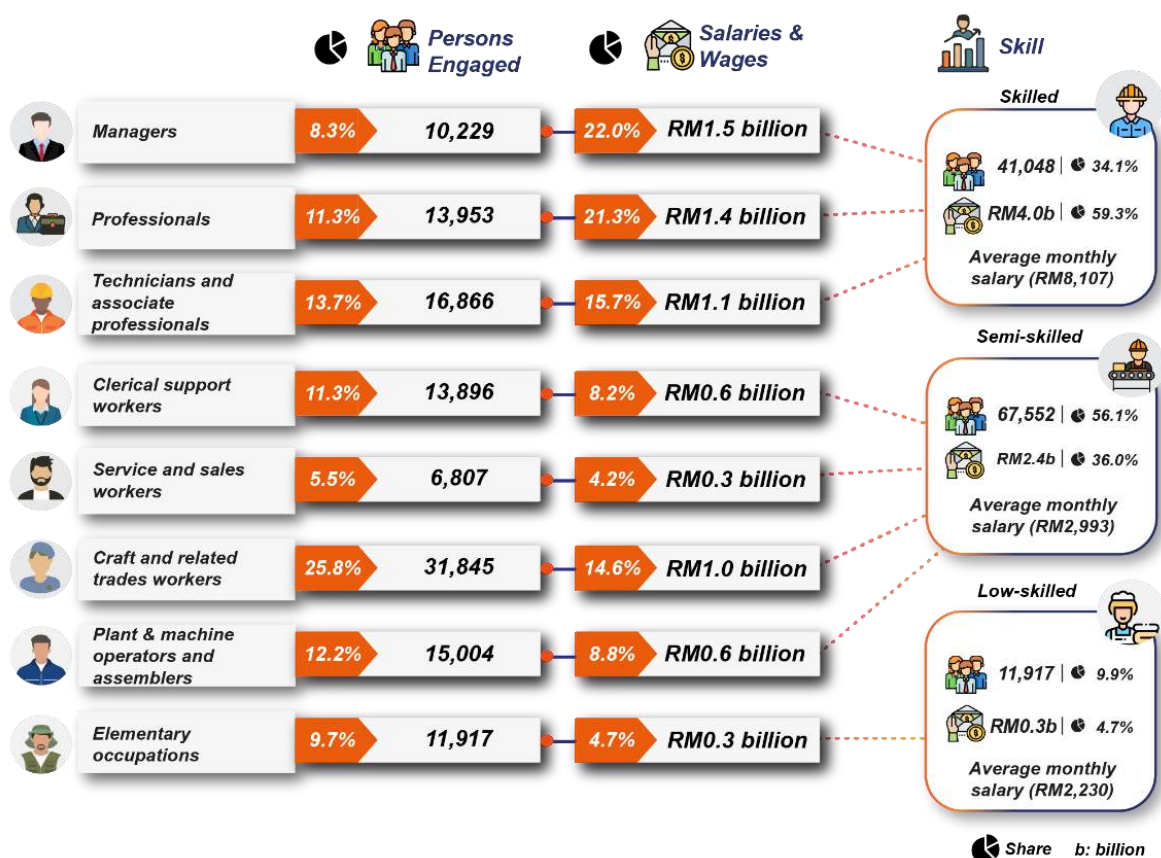
7.2 Persons Engaged and Salaries & Wages by Category and Skills

The highest categories of persons engaged were contributed by Craft and related trades persons engaged with a total of 31,845 persons (25.8%). This was followed by the Technicians and associate professionals, with 16,866 persons (13.7%) and Plant & machine operators and assemblers recorded 15,004 persons (12.2%).

Meanwhile, Managers recorded the highest salaries & wages amounting to RM1.5 billion (22.0%). This follows by the Professionals and also Technicians and associate professionals posted RM1.4 billion (21.3%) and RM1.1 billion (15.7%) respectively.

In terms of skill levels, Semi-skilled workers recorded the highest number, with 67,552 persons (56.1%) and an average monthly salary of RM2,993. Subsequently, Skilled workers totalled 41,048 persons (34.1%) with an average salary of RM8,107 per month. Meanwhile, Low-skilled workers recorded 11,917 persons (9.9%) with an average salary of RM2,230 per month, as shown in **Exhibit 7**.

Exhibit 7: Persons Engaged and Salaries & Wages by Category and Skills, 2023

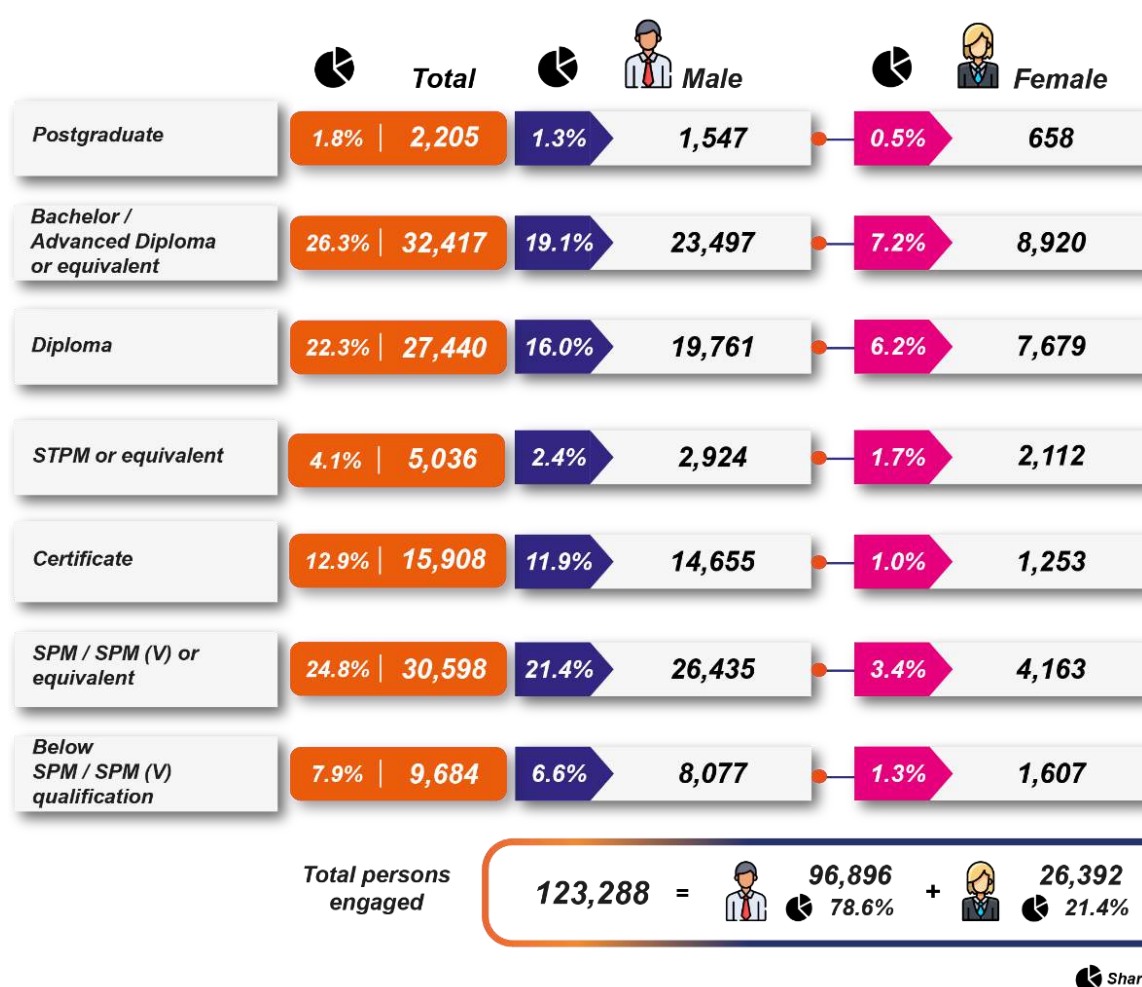


7.3 Persons Engaged by Highest Certificate Obtained

Persons engaged with a bachelor's degree / advanced diploma or equivalent have the highest number, totalling 32,417 persons, contributing 26.3 per cent. This is followed by those with an SPM / SPM (V) qualification or equivalent, with a total of 30,598 persons, contributing 24.8 per cent. Next, persons engaged with a diploma equivalent recorded a total of 27,440 persons, contributing 22.3 per cent.

OGSE activities were dominated by male, who contributed 78.6 per cent or 96,896 persons to the total persons engaged. Meanwhile, female accounted 21.4 per cent equivalent to 26,392 persons in year 2023 as depicted in **Exhibit 8**.

Exhibit 8: Persons Engaged by Highest Certificate Obtained, 2023



8. Fixed Assets

The value of fixed assets for establishment engaged in OGSE activities in 2023 amounted to RM111.0 billion. The Mining and quarrying sector recorded the highest value of fixed assets, contributing 71.6 per cent or RM79.5 billion. This was followed by the Construction sector with RM2.8 billion (2.5%). Meanwhile, the Services sector recorded RM26.5 billion (23.9%), while the Manufacturing sector registered a value amounting to RM2.2 billion (2.0%) as shown in **Exhibit 9**.

Exhibit 9: Fixed Assets by Sector, 2023



9. Performance by Region

The regions in Malaysia refer to Peninsular Malaysia, Sabah, and Sarawak. Peninsular Malaysia comprises 11 states, namely Johor, Kedah, Kelantan, Melaka, Negeri Sembilan, Pahang, Pulau Pinang, Perak, Perlis, Selangor, and Terengganu, along with three Federal Territories, which include Kuala Lumpur, Putrajaya, and Labuan. Findings from the Manufacturing, Construction, and Mining & quarrying sector were classified as Industrial segment. The main statistics by region and segment are as shown in **Exhibit 10**.

9.1 Peninsular Malaysia

The number of establishments in Peninsular Malaysia recorded the highest total at 2,420 establishments or 83.7 per cent, with the Industrial segment and the Services segment registered 1,061 and 1,359 establishments, respectively. The gross output generated by this region amounted to RM70.8 billion, with the Industrial segment recorded the highest output of RM48.8 billion, while the Services segment contributed RM22.0 billion.

Peninsular Malaysia continued to dominate the value of intermediate input, amounting to RM34.9 billion or 87.8 per cent of the total. The Industrial segment remained the highest contributor at RM22.5 billion, followed by the Services segment at RM12.4 billion. The value added contributed by Peninsular Malaysia totalled RM35.9 billion or 91.0 per cent, with the Industrial segment recorded RM26.2 billion compared to RM9.6 billion from the Services segment.

The total of persons engaged in Peninsular Malaysia was recorded at 98,647 persons, accounted for 80.0 per cent of the overall workers. A total of 60,821 persons were employed in the Industrial segment, while 37,826 persons were in the Services segment. Salaries & wages paid in Peninsular Malaysia amounted to RM5.5 billion or 81.0 per cent, with the Industrial segment contributing RM3.2 billion and the Services segment RM2.3 billion.

9.2 Sabah

Sabah recorded 127 establishments or 4.4 per cent, with 74 establishments in the Services segment and 53 establishments in the Industrial segment. The gross output generated amounted to RM1.4 billion or 1.8 per cent, with both the Services and Industrial segments recorded the same value of RM0.7 billion.

Sabah recorded a total intermediate input of RM0.9 billion or 2.1 per cent, with RM0.5 billion contributed by the Industrial segment and RM0.4 billion from the Services segment. The value added contributed by this region amounted to RM0.6 billion or 1.4 per cent, which the Industrial and Services segments recorded RM0.2 billion and RM0.4 billion, respectively.

The total number of persons engaged in Sabah was 6,579 persons or 5.4 per cent, with 3,781 persons in the Services segment and 2,798 persons working in the Industrial segment. Salaries & wages paid in Sabah amounted to RM0.2 billion or 3.3 per cent, with both the Services and Industrial segments recorded RM0.1 billion.

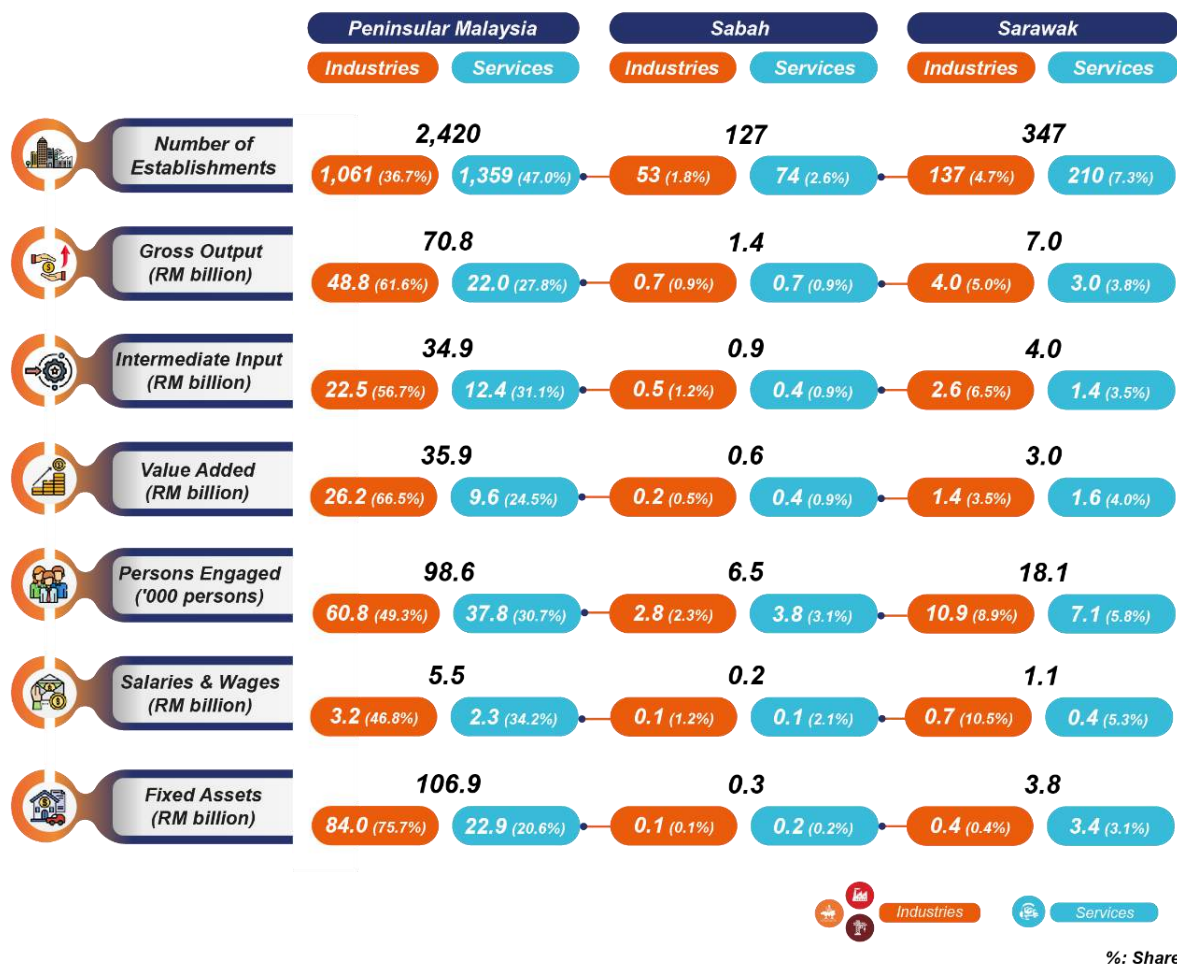
9.3 Sarawak

Sarawak recorded a total of 347 establishments or 12.0 per cent, comprised of 137 establishments contributed by the Industrial segment and 210 establishments by the Services segment. The gross output amounted to RM7.0 billion or 8.8 per cent, with the Industrial segment generating RM4.0 billion, while the Services segment contributed RM3.0 billion.

The value of intermediate input was recorded at RM4.0 billion or 10.0 per cent, with RM2.6 billion contributed by the Industrial segment and RM1.4 billion from the Services segment. The value added recorded by Sarawak amounted to RM3.0 billion or 7.5 per cent, with RM1.4 billion from the Industrial segment and RM1.6 billion from the Services segment.

The persons engaged in Sarawak was 18,062 or 14.7 per cent, with 10,938 persons in the Industrial segment and 7,124 persons working in the Services segment. Salaries & wages paid amounted to RM1.1 billion or 15.8 per cent, with the Industrial segment contributing RM0.7 billion and the Services segment RM0.4 billion.

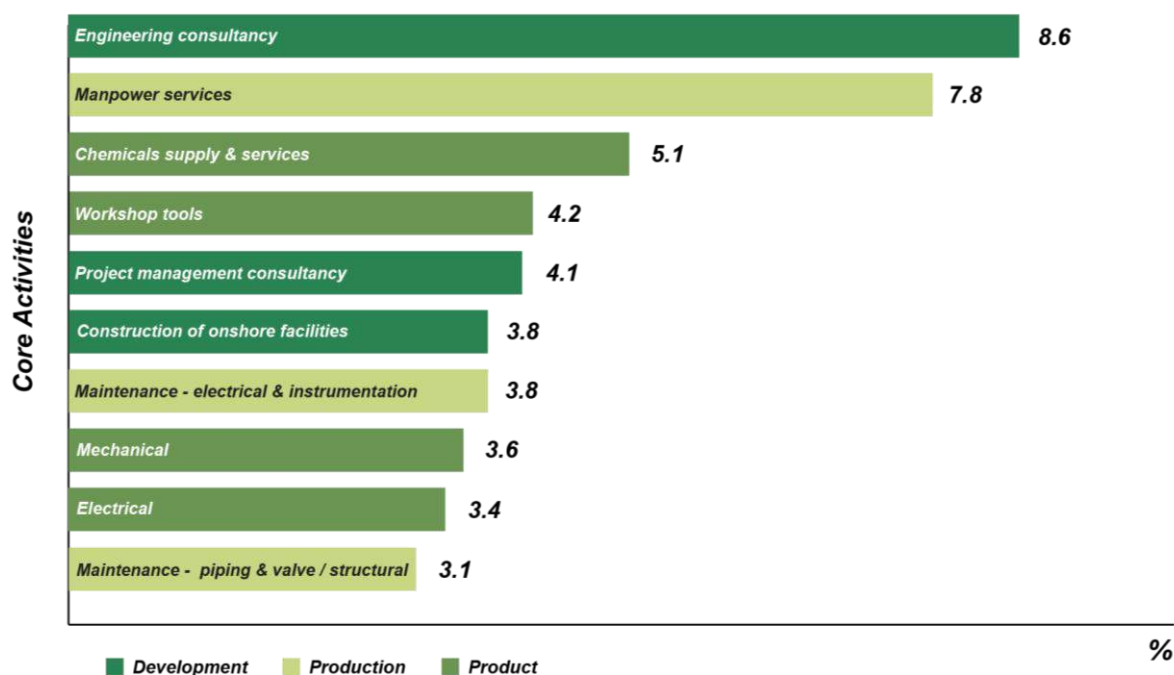
Exhibit 10: Key Statistics by Region and Segment, 2023



10. Core Activities of OGSE

Core activities of OGSE refer to the categories of work involved in supplying goods and services to license holders awarded contracts by PETRONAS. A total of 56 core activities have been identified, with five main groups, namely Exploration, Development, Production, Decommissioning, and Products.

Based on this census, the 10 highest core activities that contribute almost 50.0 per cent have been identified. Engineering consultancy recorded the highest participation, contributing 8.6 per cent. This was followed by Manpower services and Chemical supply & service activities, contributing 7.8 per cent and 5.1 per cent, respectively, to the overall OGSE core activities as shown in **Exhibit 11**.

Exhibit 11: 10 Highest Core Activities of OGSE, 2023

11. Environmental, Social, and Governance (ESG) Understanding and Awareness

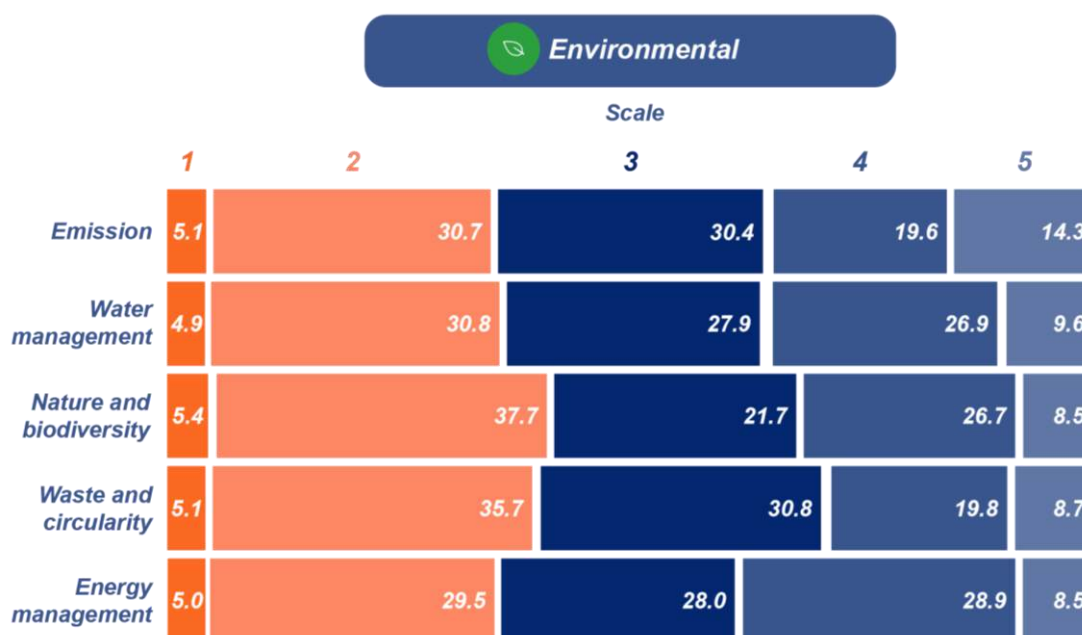
The principles of Environmental, Social and Governance (ESG) are adopted to ensure long-term sustainability while complying with local and international regulatory requirements. The implementation of ESG in this sector is not only aimed at reducing environmental impact but also at enhancing social well-being and strengthening corporate governance. The level of organizational understanding and awareness is measured on a scale from 1 to 5 with details as follows:

1. No awareness
2. Aware but currently not actively tracking ESG performance metrics
3. Tracking and measuring ESG performance for external use
4. Tracking, measuring, and publicly disclosing ESG performance or to stakeholders (e.g., customers)
5. Tracking, measuring, and publicly disclosing ESG performance generally or to stakeholders, with clear ESG targets and systems in place to ensure compliance/drive improvement in ESG (e.g., business systems)

11.1 Environmental

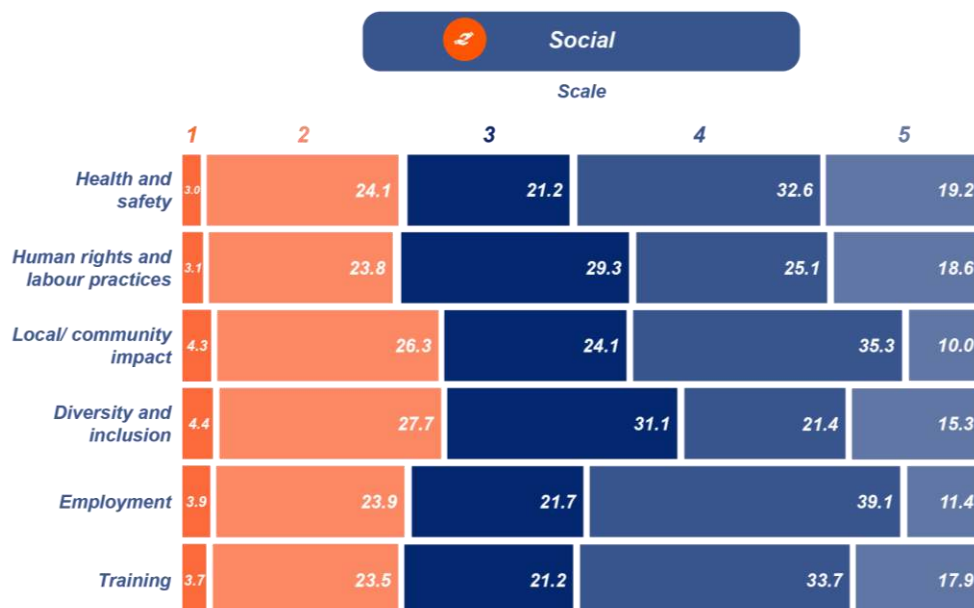
Measurement for the Environmental element includes five main components: Emissions, Water management, Nature and biodiversity, Waste and circularity, and Energy management. Based on this element, most establishments recorded an understanding level at scale 2 for the Emissions component (30.7%), Water management (30.8%), Nature and biodiversity (37.7%), Waste and circularity (35.7%), and Energy management (29.5%) as shown in **Exhibit 12**.

Exhibit 12: Percentage Scale of ESG Understanding and Awareness for Environmental, 2023



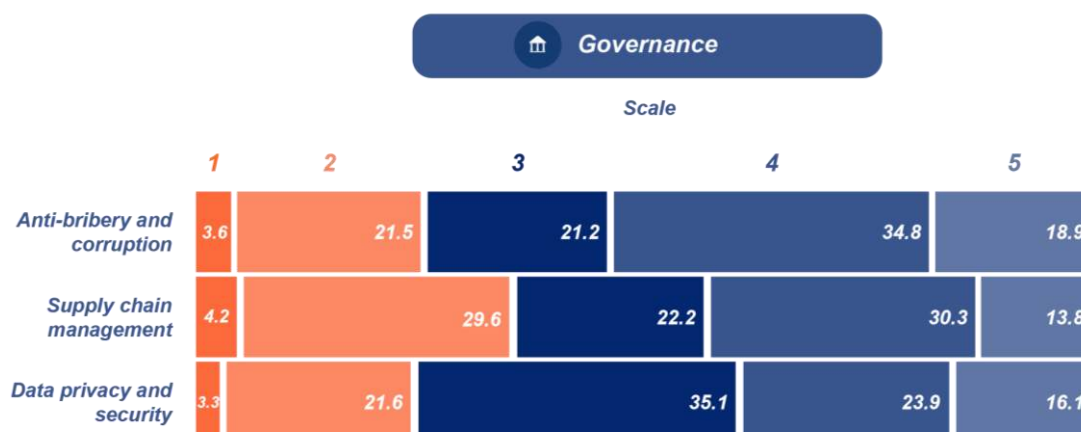
11.2 Social

The components under the social element are Health and safety, Human rights and labour practices, Local / community impact, Diversity and inclusion, Employment and Training. For the Social element, most establishments recorded an understanding level at scale 4 for four out of six components. The highest percentage the establishments were recorded in the Employment component, with 39.1 per cent, followed by Community / place impact (35.3%), Health and safety (32.6%), and Training (33.7%). Two other components, Diversity and inclusion and Human rights and labour practices, recorded the highest percentage at scale 3, with 31.1 per cent and 29.3 per cent, respectively as depicted in **Exhibit 13**.

Exhibit 13: Percentage Scale of ESG Understanding and Awareness for the Social, 2023

11.3 Governance

The components under the Governance element are Anti-bribery and corruption, Supply chain management, and Privacy and data security. The majority of establishments recorded an understanding level at scale 4 for the Anti-bribery and Corruption component (34.8%) and the Supply chain management component (30.3%). However, for the Privacy and data security component, the highest percentage of organizations was at scale 3 (35.1%) as shown in **Exhibit 14**.

Exhibit 14: Percentage Scale of ESG Understanding and Awareness for the Governance, 2023

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3 RENCANA ARTICLE



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Cabaran dan Peluang dalam OGSE: Masa Depan Pekerjaan di Industri Minyak & Gas

Nurul Naqiah Mansor, Anis Aqilah Mohd Anas dan Nur Surya Ab Razak

1.0 Pendahuluan

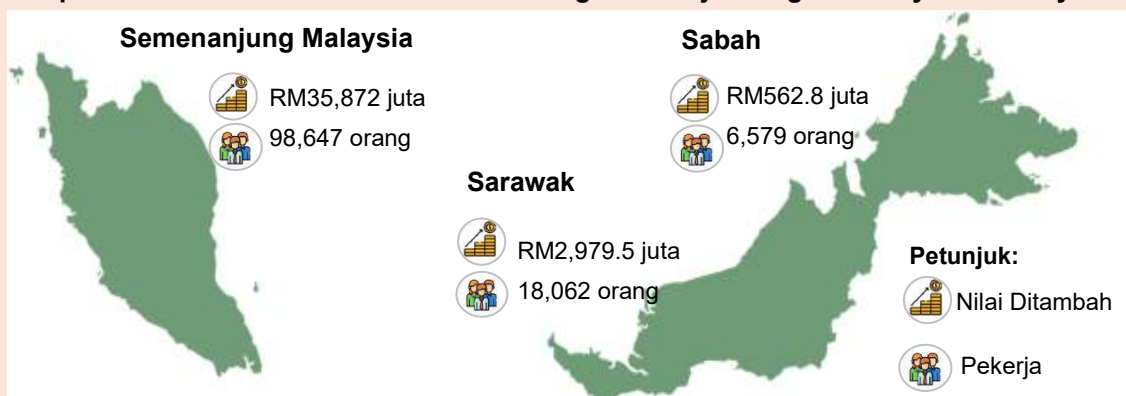
Sektor Perlombongan dan pengkuarian memainkan peranan penting dalam ekonomi Malaysia dengan menyumbang 22.4 peratus daripada jumlah hasil kerajaan pada tahun 2023. Output daripada sektor ini menjadi pemacu utama rantai ekonomi, terutama dalam segmen perindustrian, pengangkutan serta keperluan isi rumah. Selain itu, industri ini menarik pelaburan asing yang besar serta menyediakan peluang pekerjaan yang meluas, menjadikannya komponen penting dalam pembangunan tenaga kerja negara.

Menurut Majlis Perkhidmatan Minyak, Gas & Tenaga Malaysia (MOGSC), 40.0 peratus tenaga kerja dalam sektor ini berumur lebih 50 tahun. Sektor ini memerlukan strategi tenaga kerja yang berorientasikan peningkatan kemahiran, khususnya dalam pembangunan dan penggunaan teknologi. Ini akan mewujudkan jurang kemahiran yang perlu diatasi melalui pengambilan tenaga kerja muda dan program latihan perantis.

Aktiviti Perkhidmatan dan Peralatan Minyak & Gas (OGSE) merupakan tulang belakang kepada sektor minyak dan gas negara. Ia meliputi aktiviti pengilangan dan penyelenggaraan peralatan penggerudian, penyediaan perkhidmatan kejuruteraan dan teknikal, pembangunan teknologi inovatif untuk penerokaan dan pengeluaran, serta memastikan pematuhan terhadap peraturan alam sekitar dan keselamatan.

Pada tahun 2023, pertubuhan yang terlibat dalam aktiviti OGSE menyumbang 2.2 peratus kepada Keluaran Dalam Negeri Kasar (RM39.4 bilion) serta mewujudkan 123,288 peluang pekerjaan, bukan sahaja di Semenanjung Malaysia tetapi juga di Sabah dan Sarawak. **Paparan 1** menunjukkan komposisi nilai ditambah dan bilangan pekerja mengikut wilayah, menunjukkan potensi aktiviti OGSE di Sarawak dengan sumbangan nilai ditambah menghampiri RM3 bilion.

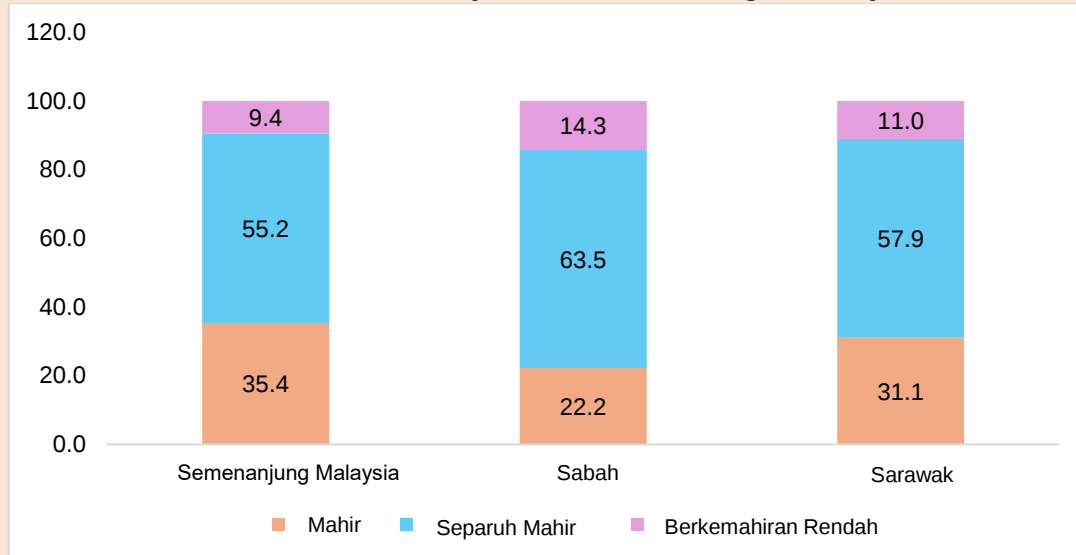
Paparan 1 : Nilai Ditambah OGSE dan Bilangan Pekerja mengikut Wilayah di Malaysia



Sumber : Jabatan Perangkaan Malaysia (DOSM)

Taburan peratusan pekerja dalam aktiviti OGSE mengikut tahap kemahiran seperti di **Carta 1** menunjukkan corak yang hampir seragam di Semenanjung Malaysia, Sabah dan Sarawak. Majoriti bilangan pekerja berada dalam kategori Separuh mahir, diikuti oleh Mahir dan Berkemahiran rendah. Corak ini mencerminkan keperluan aktiviti ini yang bergantung kepada tenaga kerja teknikal untuk menyokong operasi harian, terutamanya dalam aktiviti luar pesisir, penyelenggaraan, dan pengurusan loji serta peralatan.

Carta 1 : Peratus Pekerja Berkemahiran mengikut Wilayah



Sumber : Jabatan Perangkaan Malaysia (DOSM)

Semenanjung Malaysia mencatatkan peratusan tertinggi bagi kategori pekerja Mahir dengan 35.4 peratus, diikuti oleh Sarawak (31.1%) dan Sabah (22.2%). Pekerja dalam kategori ini terdiri daripada Jurutera petroleum, Jurutera mekanikal, Jurutera keselamatan, serta Penyelia operasi, yang memainkan peranan kritikal dalam merancang, mengawal selia, dan mengoptimumkan pengeluaran serta keselamatan. Peratusan yang lebih tinggi di Semenanjung Malaysia berkait rapat dengan lokasi ibu pejabat pejabat, institusi latihan, serta pusat penyelidikan dan pembangunan yang lebih banyak di wilayah ini.

Sebahagian besar tenaga kerja aktiviti ini terdiri daripada kategori pekerja Separuh mahir. Sabah mencatatkan peratusan tertinggi, 63.5 peratus, diikuti oleh Sarawak (57.9%) dan Semenanjung Malaysia (55.2%). Kategori ini merangkumi Juruteknik, Operator pelantar, Penyelenggara peralatan, dan Krew keselamatan, yang merupakan tulang belakang operasi aktiviti ini. Kebergantungan yang tinggi terhadap tenaga kerja separuh mahir, terutamanya di Sabah dan Sarawak, menunjukkan bahawa sebahagian besar aktiviti OGSE di wilayah ini tertumpu pada operasi lapangan dan pelaksanaan teknikal, termasuk kerja-kerja penggerudian, pemasangan infrastruktur, serta penyelenggaraan peralatan luar pesisir dan darat.

Sabah merekodkan peratusan tertinggi bagi kategori pekerja Berkemahiran rendah dengan 14.3 peratus, diikuti oleh Sarawak (11.0%) dan Semenanjung Malaysia (9.4%). Pekerja dalam kategori ini biasanya terlibat dalam tugas sokongan seperti buruh am, kerja-kerja penyelenggaraan asas, logistik lapangan, dan operasi pemunggaan. Peratusan pekerja Berkemahiran rendah yang lebih tinggi di Sabah dan Sarawak disebabkan oleh keperluan tenaga kerja bagi menyokong operasi di kawasan luar bandar atau luar pesisir yang memerlukan lebih banyak tenaga fizikal dalam tugas rutin dan operasi harian.

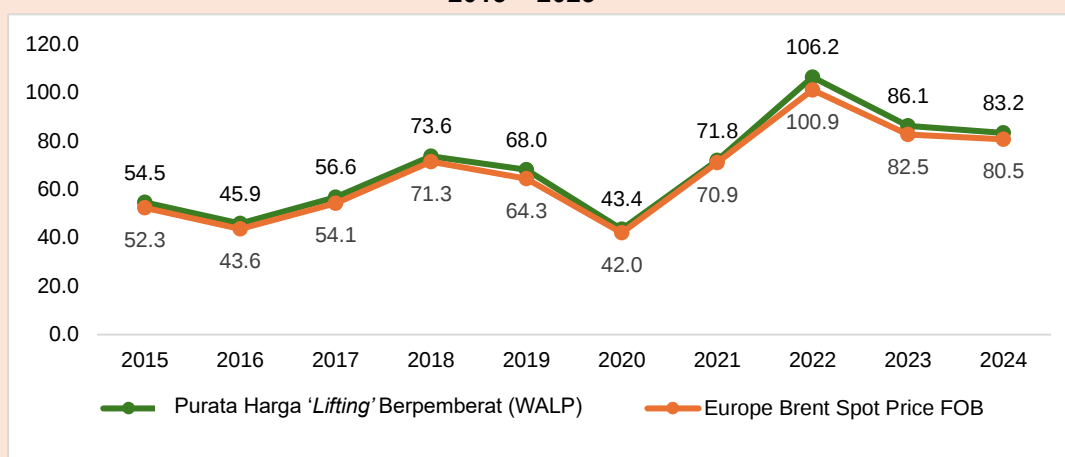
2.0 Cabaran dan Peluang

Pelbagai cabaran dan peluang menanti aktiviti OGSE di Malaysia, yang memerlukan kedinamikan dan kesediaan bagi menghadapi perubahan dalam persekitaran perniagaan. Persaingan dari negara jiran dan keperluan pelaburan yang tinggi dalam teknologi moden menyebabkan aktiviti ini perlu mempertimbangkan langkah strategik yang sesuai bagi memastikan kesinambungan dan pertumbuhan di masa hadapan. Cabaran utama yang dihadapi aktiviti OGSE pada masa kini adalah **isu kekurangan tenaga kerja mahir, peningkatan kos operasi**, serta **pematuhan kepada peraturan alam sekitar yang semakin ketat**.

Pelan Hala Tuju Industri OGSE Kebangsaan 2021-2030 menunjukkan aktiviti ini menghadapi jurang kemahiran yang semakin melebar. Bakat tempatan tidak mencukupi untuk memenuhi keperluan pekerja mahir, disebabkan oleh keengganan generasi muda untuk menceburi industri minyak dan gas yang dianggap berisiko tinggi, serta cabaran mengekalkan pekerja terlatih. Untuk mengatasi isu jurang kemahiran, syarikat OGSE perlu mengambil langkah strategik. Ini termasuk menawarkan peluang kerjaya menarik dalam teknologi baharu, meningkatkan kemajuan kerjaya dan pembangunan kemahiran pekerja, serta menyediakan pakej kompetitif gaji dan faedah untuk menarik dan mengekalkan bakat. Kerjasama dengan institusi pendidikan juga penting untuk menyesuaikan kurikulum dengan keperluan aktiviti. Dengan sokongan kerajaan melalui insentif cukai dan dana latihan, serta promosi kerjaya OGSE, aktiviti ini dapat mengisi jurang kemahiran dan terus berkembang.

Selain itu, kenaikan **kos operasi**, terutama kos tenaga, mengurangkan daya saing aktiviti OGSE. Harga minyak mentah yang tidak menentu, serta ketidaktentuan pasaran, terus menjadi isu berterusan dalam industri minyak dan gas. Perubahan harga minyak, ketegangan geopolitik, dan gangguan rantai bekalan memberi kesan langsung terhadap kestabilan industri. Kejatuhan harga pada 2020 akibat pandemik COVID-19 menjejaskan keuntungan syarikat. Konflik dan peperangan di seluruh dunia telah mengganggu rantaian bekalan tenaga global, menyebabkan harga minyak dan gas tidak stabil. **Carta 2** menunjukkan harga kembali pulih pada 2022 disebabkan oleh geopolitik dan hasil daripada pemulihan pasca-pandemik.

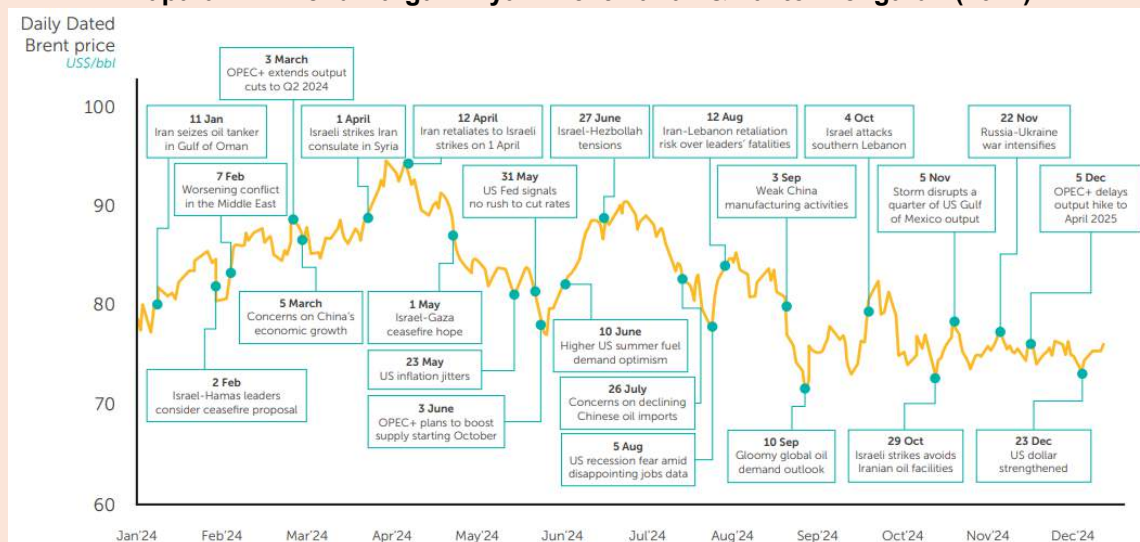
Carta 2 : Purata Harga 'Lifting' Berpemberat (WALP) dan Harga Europe Brent Spot FOB, 2015 – 2023



Sumber : PETRONAS & EIA

Harga minyak mentah dunia sepanjang tahun 2024 juga menunjukkan trend naik turun yang dipengaruhi oleh ketegangan geopolitik dan faktor ekonomi global seperti di **Paparan 2**. Harga tertinggi direkodkan sekitar USD95 setong pada Mac, didorong oleh lanjutan pemotongan pengeluaran OPEC+ dan konflik berterusan di Timur Tengah. Sementara itu, harga terendah dicatatkan pada Ogos, mencecah sekitar USD70 setong susulan kebimbangan terhadap kelembapan ekonomi China dan penurunan permintaan global.

Paparan 2 : Trend Harga Minyak Brent Harian & Faktor Pengaruh (2024)



Sumber : PETRONAS Activity Outlook, 2025 - 2027

Desakan global untuk **dekarbonisasi dan peralihan kepada Tenaga Boleh Baharu** membawa cabaran dan peluang bagi industri minyak dan gas di Malaysia. Komitmen Malaysia untuk mengurangkan pelepasan gas rumah hijau sebanyak 45% menjelang 2030 sejajar dengan Perjanjian Iklim Paris. Dasar Tenaga Negara 2022–2040 memetakan hala tuju pembangunan tenaga lestari, menekankan kepentingan gabungan tenaga yang seimbang. Pelaksanaan dasar ini diunjur menjana peningkatan RM13 bilion kepada KDNK dan 207,000 peluang pekerjaan. Namun, peralihan kepada Tenaga Boleh Baharu akan membawa kepada penurunan permintaan minyak yang lebih rendah daripada jangkaan harga.

Seterusnya, **kemajuan pesat teknologi** seperti kecerdasan buatan (AI), pembelajaran mesin, dan Internet Pelbagai Benda (*IoT*), yang kini mengubah cara tenaga diterokai, dihasilkan, dan diedarkan di seluruh dunia. Sebagai contoh, PETRONAS telah melaksanakan penyelenggaraan ramalan berasaskan AI, yang berjaya mengurangkan masa henti (*downtime*) serta meningkatkan kecekapan operasi (Laporan Tahunan PETRONAS, 2022). Teknologi ini membolehkan syarikat mengesan potensi kerosakan peralatan lebih awal, sekali gus mengurangkan kos penyelenggaraan dan meningkatkan keselamatan operasi. Namun, dengan perkembangan teknologi yang pesat, cabaran utama bagi aktiviti ini ialah memastikan penggunaan teknologi ini dapat dioptimumkan secara konsisten untuk meningkatkan kecekapan, keselamatan, dan keuntungan dalam jangka panjang. Untuk terus berdaya saing dalam persekitaran yang tidak menentu ini, syarikat perlu mengadaptasi strategi yang lebih kos efektif, memperkukuh daya tahan perniagaan serta mempelbagaikan sumber pendapatan bagi mengurangkan kebergantungan kepada minyak dan gas semata-mata.

3.0 Permintaan yang Meningkat untuk Tenaga Kerja Mahir di Malaysia

Berdasarkan cabaran yang dihadapi aktiviti OGSE, perubahan yang berlaku bukan sahaja menuntut syarikat menyesuaikan strategi mereka, tetapi juga membuka peluang baharu dalam pasaran pekerjaan. Peralihan kepada tenaga bersih, integrasi teknologi canggih seperti kecerdasan buatan (AI) dan Internet Pelbagai Benda (IoT), serta usaha meningkatkan kecekapan operasi telah mewujudkan permintaan tinggi terhadap tenaga kerja dengan kemahiran khusus. Seiring dengan perkembangan ini, beberapa bidang pekerjaan dijangka mengalami peningkatan permintaan dalam aktiviti OGSE pada masa hadapan. **Jadual 1** merangkumkan lima pekerjaan utama yang bakal menjadi tumpuan dalam sektor ini:

Jadual 1 : Lima Pekerjaan yang Dijangka Memiliki Permintaan Tinggi

BIL.	JENIS PEKERJAAN	KEPENTINGAN PEKERJAAN
1	Saintis Data & Pakar AI	Membina algoritma untuk mengoptimumkan penggerudian, meramalkan kegagalan peralatan, dan meningkatkan kecekapan operasi.
2	Pekerja Perlombongan, Petroleum & Ekstrak	Menjalankan ujian serta analisis berketepatan tinggi bagi menyokong operasi minyak dan gas.
3	Jurutera Penggerudian	Merancang dan menyelia operasi penggerudian bagi memastikan keselamatan, kecekapan, dan keberkesanan kos.
4	Pengurus Kesihatan, Keselamatan & Alam Sekitar (<i>HSE Manager</i>)	Memastikan pematuhan terhadap piawaian keselamatan dan peraturan alam sekitar untuk mengurangkan impak negatif operasi.
5	Pengurus Projek	Menyelaras dan mengawasi projek minyak & gas yang kompleks agar disiapkan mengikut masa, bajet, dan standard kualiti yang ditetapkan.

Transformasi aktiviti OGSE bukan sahaja mengubah cara operasi dijalankan, tetapi juga mencipta peluang pekerjaan yang lebih teknikal dan bernilai tinggi. Dengan peningkatan automasi serta keperluan tenaga kerja mahir, aktiviti ini terus berkembang ke arah masa depan yang lebih lestari dan inovatif. Carta 2 menunjukkan bilangan pekerja mengikut kemahiran dan jenis pekerjaan yang terlibat untuk menggerakkan aktiviti ini untuk terus berkembang. Mengikut MASCO kumpulan utama pekerja dibahagikan kepada 3 bahagian iaitu berkemahiran tinggi yang terdiri dengan pekerjaan pengurus, profesional dan juruteknik. Manakala kumpulan kedua adalah separa mahir yang terdiri daripada pekerja kerani, perkhidmatan & pertukangan, operator dan perkhidmatan & jualan. Kumpulan pekerja berkemahiran rendah pula terdiri daripada pekerja asas.

Bagi memastikan tenaga kerja dapat menyesuaikan diri dengan perubahan ini, kerjasama erat antara industri, institusi pendidikan, dan kerajaan amat diperlukan. Program peningkatan kemahiran dan latihan semula, seperti yang ditawarkan oleh PETRONAS Technical Training Sdn Bhd (PTTSB), memainkan peranan penting dalam melengkapkan pekerja dengan kemahiran baharu dalam teknologi digital dan amalan kelestarian (PETRONAS, 2023). Selain itu, pendidikan dalam bidang STEM juga perlu diperkukuhkan bagi melahirkan tenaga kerja masa depan yang inovatif, berdaya saing, dan bersedia menghadapi cabaran aktiviti OGSE yang semakin dinamik.

4.0 Kesimpulan

Aktiviti OGSE sedang mengalami transformasi yang pesat, dipacu oleh peralihan kepada tenaga bersih, kemajuan teknologi, serta keperluan untuk meningkatkan kecekapan dan kelestarian operasi. Walaupun aktiviti ini berdepan pelbagai cabaran seperti tekanan terhadap dekarbonisasi, ketidakpastian pasaran, dan perkembangan teknologi, ia turut membuka peluang baharu dalam pasaran pekerjaan. Permintaan terhadap tenaga kerja yang mahir dalam bidang digital, analitik data, serta pengurusan tenaga lestari semakin meningkat, sekali gus mengubah landskap pekerjaan dalam sektor ini.

Bagi memastikan pertumbuhan berterusan, kerjasama antara syarikat OGSE, kerajaan, dan institusi pendidikan adalah kritikal. Pelaburan dalam latihan semula dan peningkatan kemahiran perlu diperkukuhkan agar tenaga kerja Malaysia dapat bersaing dalam ekonomi global yang semakin berdaya saing. Dengan strategi yang tepat, aktiviti OGSE bukan sahaja mampu bertahan dalam era perubahan ini, tetapi juga menjadi peneraju dalam inovasi dan pembangunan tenaga yang mampan bagi masa depan.

Penafian

Artikel ini merupakan pandangan peribadi penulis dan tidak mencerminkan pandangan Jabatan Perangkaan Malaysia (DOSM).

Rujukan

1. Bank Dunia (2021). Prospek Ekonomi Global.
2. Data Tenaga Negara, 2022-2040.
3. *Diversity for Social Impact* (2022). Kepentingan Kepelbagaian dalam Perniagaan.
4. Forum Ekonomi Dunia (WEF) (2023). Masa Depan Kolaborasi Tenaga.
5. Forum Ekonomi Dunia (WEF) (2025). Laporan Pekerjaan Masa Depan 2025
6. Kementerian Alam Sekitar dan Air (2021). Komitmen Malaysia di bawah Perjanjian Paris.
7. *Malaysia Oil, Gas & Energy Services Council (MOGSC)*. (2022). Laporan Demografi Tenaga Kerja.
8. Pelan Hala Tuju Industri OGSE Kebangsaan 2021-2030. (2021).
9. PETRONAS (2024). Harga Minyak di Malaysia.
10. PETRONAS (2022). Laporan Tahunan 2022.
11. *PETRONAS Activity Outlook*, 2025 – 2027
12. PETRONAS Technical Training Sdn Bhd (PTTSB) (2023). Inisiatif Peningkatan Kemahiran.
13. Universiti Teknologi PETRONAS (UTP) (2023). Kolaborasi Industri – Akademik.
14. Zara, J., Nordin, S. M., & Isha, A. S. N. (2023). Influence of communication determinants on safety commitment in a high-risk workplace: a systematic literature review of four communication dimensions [Review of Influence of communication determinants on safety commitment in a high-risk workplace: a systematic literature review of four communication dimensions]. *Frontiers in Public Health*, 11. *Frontiers Media*.
<https://doi.org/10.3389/fpubh.2023.1225995>
15. Zhang, Y., Abdullah, M. R. T. L., Khan, N. H. bt A. L., Javaid, M. U., Nazri, M., & Shah, M. U. (2022). High Safety Risk Assessment in the Time of Uncertainties (COVID-19): An Industrial Context. In *Frontiers in Psychology* (Vol. 13). *Frontiers Media*.
<https://doi.org/10.3389/fpsyg.2022.834361>

Challenges and Opportunities in OGSE: The Future of Employment in the Oil & Gas Industry

Nurul Naqiah Mansor, Anis Aqilah Mohd Anas and Nur Surya Ab Razak

1.0 Introduction

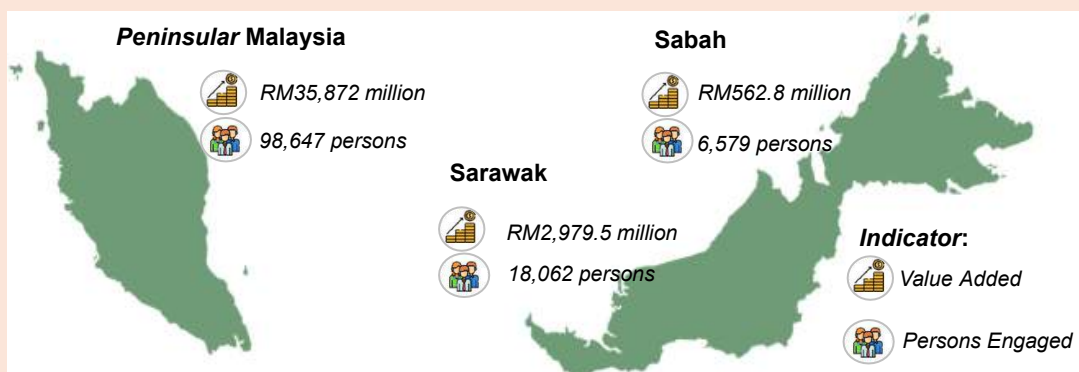
The Mining and quarrying sector plays a crucial role in Malaysia's economy, contributing 22.4 per cent of the total government revenue in 2023. The output from this sector is a primary driver of the economic chain, particularly in the industrial, transportation, and household segments. Additionally, this industry attracts substantial foreign investments and provides extensive employment opportunities, making it an essential component of the country's workforce development.

According to the Malaysian Oil, Gas & Energy Services Council (MOGSC), 40.0 per cent of the workforce in this activities is over 50 years old. These activities requires a workforce strategy focused on skills enhancement, particularly in the development and utilization of technology. This creates a skills gap that needs to be addressed through hiring young talent and apprenticeship programs.

The Oil & Gas Services and Equipment (OGSE) activities are a key pillar of the country's oil and gas sector. They encompass the manufacturing and maintenance of drilling equipment, the provision of engineering and technical services, the development of innovative technologies for exploration and production, and ensuring compliance with environmental and safety regulations.

In 2023, establishments involved in the OGSE activities contributed 2.2 per cent to the Gross Domestic Product (GDP) (RM39.4 billion) and created 123,288 job opportunities, not only in Peninsular Malaysia but also in Sabah and Sarawak. **Exhibit 1** shows the composition of value added and the person engaged by region, highlighting the potential of OGSE activities in Sarawak with value added contributions approaching RM3 billion.

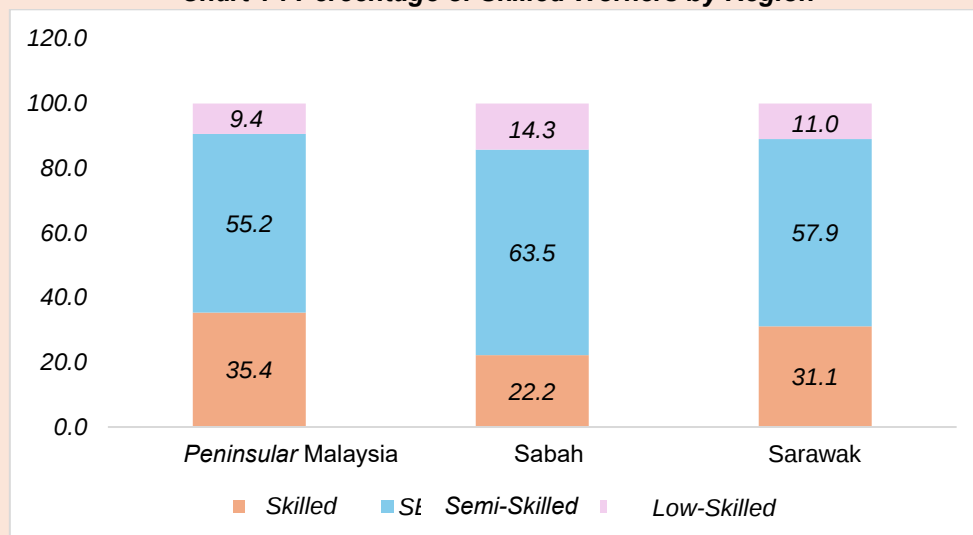
Exhibit 1 : OGSE Value Added and Person Engaged by Region in Malaysia



Source: Department of Statistics Malaysia (DOSM)

The percentage distribution of workers in OGSE activities by skill level, as shown in **Chart 1**, reveals a nearly uniform pattern in Peninsular Malaysia, Sabah, and Sarawak. Most workers are in Semi-skilled category, followed by Skilled and Low-skilled. This pattern reflects the need for technical manpower to support daily operations, particularly in offshore activities, maintenance, and plant and equipment management.

Chart 1 : Percentage of Skilled Workers by Region



Source : Department of Statistics Malaysia (DOSM)

Peninsular Malaysia recorded the highest percentage of Skilled workers at 35.4 per cent, followed by Sarawak (31.1%) and Sabah (22.2%). Workers in this category include Petroleum Engineers, Mechanical Engineers, Safety Engineers, and Operations Supervisors who play critical roles in planning, regulating, and optimizing production and safety. The higher percentage in Peninsular Malaysia is closely related to the location of company headquarters, training institutions, and research and development centres, which are more abundant in this region.

A significant portion of the workforce in this activity consists of Semi-skilled workers. Sabah recorded the highest percentage, 63.5 per cent, followed by Sarawak (57.9%) and Peninsular Malaysia (55.2%). This category includes Technicians, Platform Operators, Equipment Maintenance Workers, and Safety Crews, forming the backbone of activity operations. The heavy reliance on Semi-skilled workers, particularly in Sabah and Sarawak, indicates that a large part of OGSE activities in these regions focuses on field operations and technical implementation, including drilling, infrastructure installation, and offshore and onshore equipment maintenance.

Sabah recorded the highest percentage of Low-skilled workers at 14.3 per cent, followed by Sarawak (11.0%) and Peninsular Malaysia (9.4%). Workers in this category are typically involved in support tasks such as general labour, basic maintenance work, field logistics, and loading operations. The higher percentage of Low-skilled workers in Sabah and Sarawak is due to the need for labour to support operations in rural or offshore areas, requiring more physical manpower in routine tasks and daily operations.

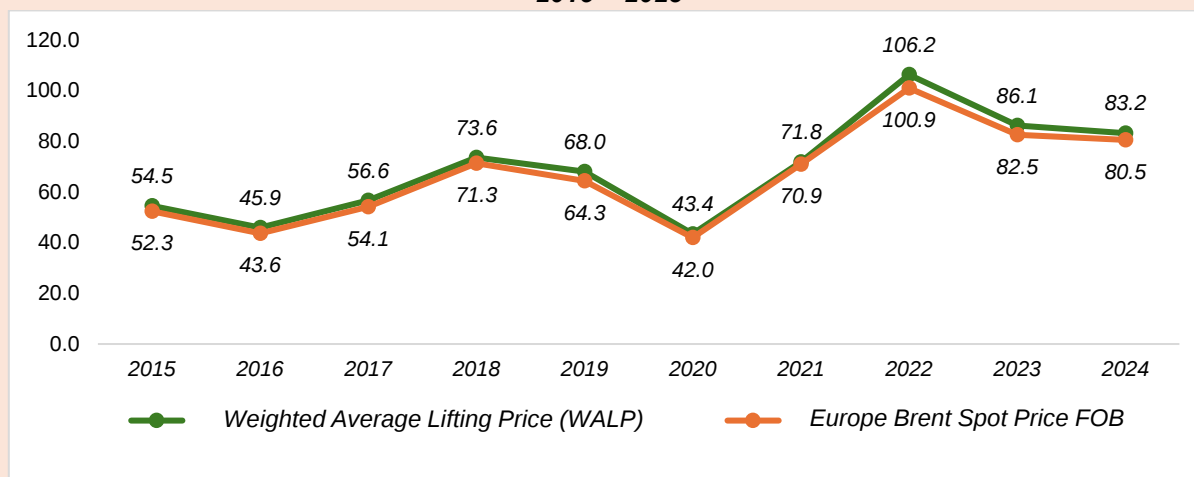
2.0 Challenges and Opportunities

Various challenges and opportunities await the OGSE activities in Malaysia, requiring dynamism and readiness to face changes in the business environment. Competition from neighbouring countries and the need for substantial investment in modern technology necessitate strategic measures to ensure sustainability and future growth. The main challenges facing the OGSE activities today are **the shortage of skilled labour, rising operational costs, and increasingly stringent environmental regulations.**

National OGSE Industry Blueprint 2021-2030 highlights the widening skills gap within the activities. Local talent is insufficient to meet the demand for skilled workers due to the reluctance of younger generations to enter the oil and gas industry, which is perceived as high-risk, and the challenge of retaining trained workers. To address the skills gap, OGSE companies need to take strategic steps. These include offering attractive career opportunities in new technologies, enhancing career progression and skills development, and providing competitive salary and benefits packages to attract and retain talent. Collaboration with educational institutions is also essential to align curricular with industry needs. With government support through tax incentives and training funds, as well as the OGSE careers awareness campaigns, the activities can bridge the skills gap and continue to grow.

Additionally, rising **operational costs**, particularly energy costs, are reducing the activities' competitiveness. Volatile crude oil prices and market uncertainties continue to be ongoing issues in the oil and gas industry. Price fluctuations, geopolitical tensions, and supply chain disruptions directly impact the industry's stability. The price drops in 2020 due to the COVID-19 pandemic affected company profitability. Conflicts and wars worldwide have disrupted the global energy supply chain, causing oil and gas price to be unstable. **Chart 2** shows prices rebounding in 2022 due to geopolitical factors and post-pandemic recovery efforts.

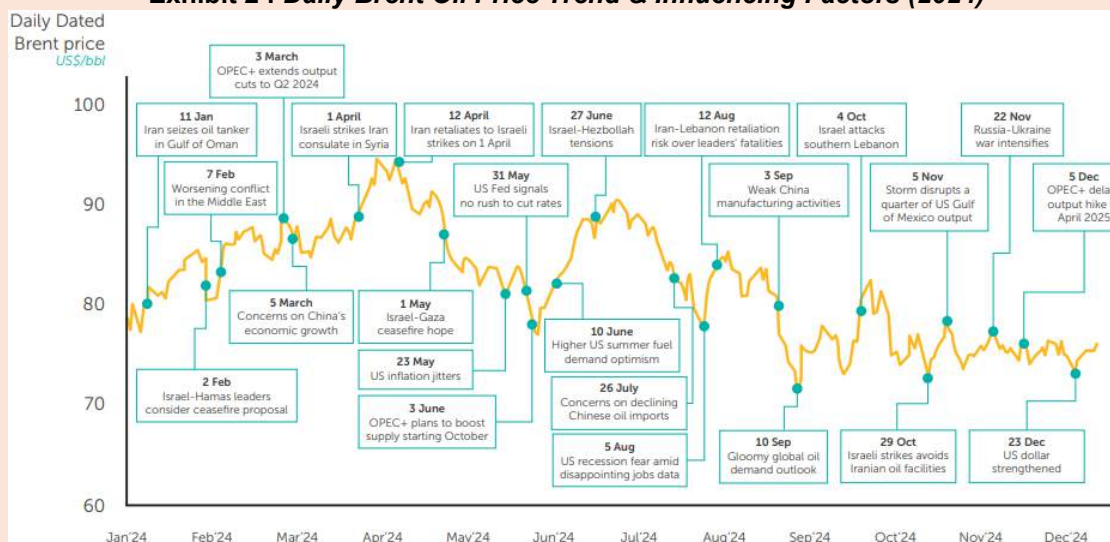
Chart 2 : Weighted Average Lifting Price (WALP) and Europe Brent Spot Price FOB, 2015 – 2023



Sources : PETRONAS & EIA

The global crude oil prices throughout 2024 also exhibited a fluctuating trend influenced by geopolitical tensions and global economic factors, as shown in **Exhibit 2**. The highest price was recorded at around USD95 per barrel in March, driven by the extension of OPEC+ production cuts and ongoing conflicts in the Middle East. Meanwhile, the lowest price was recorded in August, reaching around USD70 per barrel following concerns over China's economic slowdown and a decline in global demand.

Exhibit 2 : Daily Brent Oil Price Trend & Influencing Factors (2024)



Sources : PETRONAS Activity Outlook, 2025 – 2027

Decarbonization and the transition to Renewable Energy presents both challenges and opportunities for Malaysia's oil and gas industry. Malaysia's commitment to reducing greenhouse gas emissions by 45% by 2030 is aligned with the Paris Climate Agreement. The National Energy Policy 2022–2040 outlines the pathway for sustainable energy development, emphasizing the importance of a balanced energy mix. The implementation of this policy is projected to contribute RM13 billion to GDP and create 207,000 job opportunities. However, the shift to Renewable Energy is expected to result in lower oil demand than projected prices.

Furthermore, the **rapid advancement of technologies** such as artificial intelligence (AI), machine learning, and the Internet of Things (IoT) is transforming how energy is explored, produced, and distributed globally. For example, PETRONAS has implemented AI-based predictive maintenance, successfully reducing downtime and enhancing operational efficiency (PETRONAS Annual Report, 2022). This technology enables companies to detect potential equipment failures earlier, thereby reducing maintenance costs and improving operational safety. However, the main challenge in these activities is ensuring that the use of these technologies can be consistently optimized to enhance efficiency, safety, and profitability in the long run. To remain competitive in this uncertain environment, companies must adopt more cost-effective strategies, strengthen business resilience, and diversify revenue streams to reduce dependence solely on oil and gas.

3.0 Increasing Demand for Skilled Labor in Malaysia

The challenges faced by the OGSE activities require companies to not only adapt their strategies but also explore new employment opportunities. The shift toward clean energy, integration of advanced technologies such as artificial intelligence (AI) and the Internet of Things (IoT), and efforts to enhance operational efficiency have created a high demand for workers with specialized skills. In line with these developments, several occupations are expected to experience increased demand in the OGSE activities in the future. **Table 1** summarizes the five key jobs that are anticipated to be the focus of this sector:

Table 1 : Five Jobs Expected to Have High Demand

No.	Job Type	Job Importance
1	Data Scientists & AI Experts	Building algorithms to optimize drilling, predict equipment failures, and improve operational efficiency.
2	Mining, Petroleum & Extraction Workers	Conducting high-precision tests and analysis to support oil and gas operations.
3	Drilling Engineers	Planning and overseeing drilling operations to ensure safety, efficiency, and cost-effectiveness.
4	Health, Safety & Environmental (HSE) Managers	Ensuring compliance with safety standards and environmental regulations to minimize negative impacts.
5	Project Managers	Coordinating and supervising complex oil & gas projects to meet time, budget, and quality standards.

The transformation of OGSE activities not only changes the way operations are conducted but also creates more technical and high-value job opportunities. With the increase in automation and the demand for skilled labor, these activities continue to progress towards a more sustainable and innovative future. According to MASCO, the main workforce groups are divided into three categories: highly skilled, which includes managers, professionals, and technicians; semi-skilled, which includes clerical workers, service & craft workers, operators, and sales & service personnel; and low-skilled, which comprises basic laborers.

To ensure the workforce can adapt to these changes, close collaboration between the industry, educational institutions, and the government is essential. Skill enhancement and retraining programs, such as those offered by PETRONAS Technical Training Sdn Bhd (PTTSB), play a vital role in equipping workers with new skills in digital technology and sustainability practices (PETRONAS, 2023). Additionally, education in STEM fields needs to be strengthened to produce a future workforce that is innovative, competitive, and ready to face the increasingly dynamic challenges of OGSE activities.

4.0 Conclusion

The OGSE activities are undergoing rapid transformation, driven by the transition to clean energy, technological advancements, and the need to enhance operational efficiency and sustainability. Although these activities face various challenges such as decarbonization pressure, market uncertainties, and technological developments, they also present new opportunities in the job market. The demand for skilled workers in digital technology, data analytics, and sustainable energy management is increasing, thereby reshaping the employment landscape within this sector.

To ensure continuous growth, collaboration between OGSE companies, the government, and educational institutions is critical. Investment in retraining and skill enhancement needs to be strengthened to ensure the Malaysian workforce can remain competitive in an increasingly challenging global economy. With the right strategies, OGSE activities can not only survive in this era of change but also become leaders in innovation and sustainable energy development for the future.

Disclaimer

The article is an author's view and does not reflect the view of Department of Statistics Malaysia (DOSM).

References

1. Diversity for Social Impact (2022). *The Importance of Diversity in Business*.
2. Ministry of Environment and Water (2021). *Malaysia's Commitment under the Paris Agreement*.
3. National Energy Data, 2022-2040.
4. National OGSE Industry Blueprint 2021-2030. (2021). *National OGSE Industry Blueprint 2021-2030*.
5. PETRONAS (2022). *Annual Report 2022*.
6. PETRONAS (2024). *Oil Prices in Malaysia*.
7. PETRONAS Technical Training Sdn Bhd (PTTSB) (2023). *Skill Enhancement Initiatives*.
8. PETRONAS Activity Outlook, 2025 - 2027.
9. The Malaysian Oil, Gas & Energy Services Council (MOGSC) (2022). *Workforce Demographics Report*.
10. Universiti Teknologi PETRONAS (UTP) (2023). *Industry – Academic Collaboration*.
11. World Bank (2021). *Global Economic Prospects*.
12. World Economic Forum (WEF) (2023). *The Future of Energy Collaboration*.
13. World Economic Forum (WEF) (2025). *Future of Jobs Report 2025*.
14. Zara, J., Nordin, S. M., & Isha, A. S. N. (2023). *Influence of Communication Determinants on Safety Commitment in a High-Risk Workplace: A Systematic Literature Review of Four Communication Dimensions*. *Frontiers in Public Health*, 11. *Frontiers Media*.
<https://doi.org/10.3389/fpubh.2023.1225995>
15. Zhang, Y., Abdullah, M. R. T. L., Khan, N. H. bt A. L., Javaid, M. U., Nazri, M., & Shah, M. U. (2022). *High Safety Risk Assessment in the Time of Uncertainties (COVID-19): An Industrial Context*. In *Frontiers in Psychology* (Vol. 13). *Frontiers Media*.
<https://doi.org/10.3389/fpsyg.2022.834361>

4 JADUAL STATISTIK STATISTICAL TABLE



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Jadual 1: Statistik utama aktiviti OGSE mengikut segmen, 2023
Table 1: Principal statistics of OGSE activities by segment, 2023

Segmen <i>Segment</i>	Bilangan pertubuhan <i>Number of establishments</i>	Nilai output kasar <i>Value of gross output</i> (RM '000)	Nilai input perantaraan <i>Value of intermediate input</i> (RM '000)	Nilai ditambah <i>Value added</i> (RM '000)	Bilangan pekerja <i>Number of persons engaged</i>	Gaji & upah <i>Salaries & wages</i> (RM '000)	Nilai harta tetap <i>Value of fixed assets</i> (RM '000)
Jumlah (A+B) <i>Total (A+B)</i>	2,894	79,193,943	39,778,726	39,415,216	123,288	6,778,182	110,986,052
A. Segmen Perindustrian <i>Industrial Segment</i>	1,251	53,440,665	25,623,502	27,817,163	74,557	3,959,790	84,507,264
Perlombongan dan pengkuarian <i>Mining and quarrying</i>	198	28,101,476	8,406,169	19,695,307	11,496	1,164,135	79,519,810
Pembuatan <i>Manufacturing</i>	251	9,936,494	6,652,392	3,284,101	12,365	708,002	2,184,536
Pembinaan <i>Construction</i>	802	15,402,695	10,564,941	4,837,754	50,696	2,087,654	2,802,918
B. Segmen Perkhidmatan <i>Services Segment</i>	1,643	25,753,278	14,155,224	11,598,053	48,731	2,818,392	26,478,788
Perkhidmatan <i>Services</i>	1,643	25,753,278	14,155,224	11,598,053	48,731	2,818,392	26,478,788

Jadual 1.1 : Statistik utama aktiviti OGSE bagi segmen Perindustrian, 2023
Table 1.1: Principal statistics of OGSE activities by Industrial segment, 2023

Segmen <i>Segment</i>	Bilangan pertubuhan <i>Number of establishments</i>	Nilai output kasar <i>Value of gross output</i>	Nilai input perantaraan <i>Value of intermediate input</i>	Nilai ditambah <i>Value added</i>	Bilangan pekerja <i>Number of persons engaged</i>	Gaji & upah <i>Salaries & wages</i>	Nilai harta tetap <i>Value of fixed assets</i>
		(RM '000)	(RM '000)	(RM '000)		(RM '000)	(RM '000)
Segmen Perindustrian (A+B+C) <i>Industrial Segment (A+B+C)</i>	1,251	53,440,665	25,623,502	27,817,163	74,557	3,959,790	84,507,264
A. Perlombongan dan pengkuarian <i>Mining and quarrying</i>	198	28,101,476	8,406,169	19,695,307	11,496	1,164,135	79,519,810
B. Pembuatan <i>Manufacturing</i>	251	9,936,494	6,652,392	3,284,101	12,365	708,002	2,184,536
Produk tekstil, pakaian, kulit dan kasut <i>Textiles Products, wearing apparel, leather and footwear products</i>	5	128,966	68,188	60,778	350	10,268	7,078
Produk kayu, perabot, produk kertas dan percetakan <i>Wood products, furniture, paper products and printing</i>	7	22,140	14,112	8,028	157	6,187	6,778
Produk petroleum, kimia, getah dan produk plastik <i>Petroleum product, chemical, rubber and plastic products</i>	21	2,699,810	1,441,216	1,258,594	1,246	113,294	703,392
Produk mineral bukan logam, logam asas dan produk logam yang dibentuk <i>Non-metallic mineral products, basic metal and fabricated metal products</i>	32	864,768	673,065	191,703	1,806	89,700	240,699
Produk elektrik, elektronik dan optik <i>Electrical product, electronic and optical products</i>	37	4,073,728	3,110,857	962,871	3,443	239,019	768,588
Peralatan pengangkutan, pembuatan lain dan pembaikan <i>Transport equipment, other manufacturing and repair</i>	149	2,147,082	1,344,953	802,128	5,363	249,534	458,003
C. Pembinaan <i>Construction</i>	802	15,402,695	10,564,941	4,837,754	50,696	2,087,654	2,802,918
Bangunan kediaman <i>Residential building</i>	45	500,047	347,465	152,582	2,561	76,173	73,250
Bangunan bukan kediaman <i>Non-residential building</i>	140	2,072,837	1,346,246	726,591	7,771	263,995	374,623
Kejuruteraan awam <i>Civil engineering</i>	324	9,384,103	6,517,501	2,866,603	28,762	1,334,537	1,718,631
Pertukangan khas <i>Special trades</i>	293	3,445,709	2,353,729	1,091,979	11,602	412,949	636,415

Jadual 1.2 : Statistik utama aktiviti OGSE bagi segmen Perkhidmatan, 2023
Table 1.2: Principal statistics of OGSE activities by Services segment, 2023

Segmen <i>Segment</i>	Bilangan pertubuhan <i>Number of establishments</i>	Nilai output kasar <i>Value of gross output</i>	Nilai input perantaraan <i>Value of intermediate input</i>	Nilai ditambah <i>Value added</i>	Bilangan pekerja <i>Number of persons engaged</i>	Gaji & upah <i>Salaries & wages</i>	Nilai harta tetap <i>Value of fixed assets</i>
		(RM '000)	(RM '000)	(RM '000)		(RM '000)	(RM '000)
Segmen Perkhidmatan <i>Services Segment</i>	1,643	25,753,278	14,155,224	11,598,053	48,731	2,818,392	26,478,788
Bekalan air, pembetungan, pengurusan sisa dan aktiviti pemulihan <i>Water supply, sewerage, waste management and remediation activities</i>	23	297,557	181,486	116,071	1,167	50,788	80,597
Perdagangan borong & runcit <i>Wholesale & retail trade</i>	627	2,597,913	1,109,813	1,488,100	8,036	442,597	1,310,068
Pengangkutan dan penyimpanan <i>Transportation and storage</i>	147	15,124,583	9,453,644	5,670,940	15,612	1,083,865	22,872,435
Makanan dan minuman <i>Food and beverage</i>	13	155,382	80,819	74,563	531	21,233	3,949
Maklumat dan komunikasi <i>Information and communication</i>	65	748,900	324,038	424,862	1,712	127,793	110,278
Kewangan <i>Finance</i>	9	15,069	5,760	9,309	73	1,907	21,618
Perkhidmatan hartanah <i>Real estate activities</i>	7	117,467	33,711	83,756	477	14,888	405,603
Profesional <i>Professional</i>	525	5,019,546	2,139,036	2,880,510	13,648	818,989	1,273,982
Pentadbiran dan sokongan <i>Administrative and support</i>	193	1,426,712	698,623	728,089	6,344	194,369	278,115
Pendidikan swasta <i>Private education</i>	24	73,511	37,414	36,098	508	21,745	69,628
Kesihatan swasta dan kerja sosial <i>Private health and social work</i>	10	176,638	90,882	85,756	623	40,218	52,515

Jadual 2: Statistik utama aktiviti OGSE mengikut wilayah, 2023
Table 2: Principal statistics of OGSE activities by region, 2023

Wilayah <i>Region</i>	Bilangan pertubuhan <i>Number of establishments</i>	Nilai output kasar <i>Value of gross output</i>	Nilai input perantaraan <i>Value of intermediate input</i>	Nilai ditambah <i>Value added</i>	Bilangan pekerja <i>Number of persons engaged</i>	Gaji & upah <i>Salaries & wages</i>	Nilai harta tetap <i>Value of fixed assets</i>
		(RM '000)	(RM '000)	(RM '000)		(RM '000)	(RM '000)
Jumlah (A+B+C) <i>Total (A+B+C)</i>	2,894	79,193,943	39,778,726	39,415,216	123,288	6,778,182	110,986,052
A. Semenanjung Malaysia <i>Peninsular Malaysia</i>	2,420	70,803,117	34,930,175	35,872,943	98,647	5,489,650	106,864,779
Segmen Perindustrian <i>Industrial Segment</i>	1,061	48,778,459	22,549,769	26,228,690	60,821	3,171,323	83,996,385
Segmen Perkhidmatan <i>Services Segment</i>	1,359	22,024,658	12,380,406	9,644,252	37,826	2,318,327	22,868,395
B. Sabah <i>Sabah</i>	127	1,416,905	854,083	562,822	6,579	221,786	343,645
Segmen Perindustrian <i>Industrial Segment</i>	53	683,829	485,421	198,408	2,798	79,244	122,191
Segmen Perkhidmatan <i>Services Segment</i>	74	733,076	368,662	364,414	3,781	142,542	221,454
C. Sarawak <i>Sarawak</i>	347	6,973,920	3,994,469	2,979,451	18,062	1,066,746	3,777,627
Segmen Perindustrian <i>Industrial Segment</i>	137	3,978,377	2,588,313	1,390,064	10,938	709,224	388,689
Segmen Perkhidmatan <i>Services Segment</i>	210	2,995,543	1,406,156	1,589,387	7,124	357,523	3,388,939

Jadual 3: Statistik utama aktiviti OGSE mengikut taraf sah, 2023
Table 3: Principal statistics of OGSE activities by legal status, 2023

Taraf sah <i>Legal status</i>	Bilangan pertubuhan <i>Number of establishments</i>	Nilai output kasar <i>Value of gross output</i>	Nilai input perantaraan <i>Value of intermediate input</i>	Nilai ditambah <i>Value added</i>	Bilangan pekerja <i>Number of persons engaged</i>	Gaji & upah <i>Salaries & wages</i>	Nilai harta tetap <i>Value of fixed assets</i>	
		(RM '000)	(RM '000)	(RM '000)		(RM '000)	(RM '000)	
Jumlah <i>Total</i>	2,894	79,193,943	39,778,726	39,415,216	123,288	6,778,182	110,986,052	
Hak milik perseorangan <i>Individual proriertorship</i>	15	23,515	14,452	9,063	200	5,550	1,616	
Syarikat awam berhad <i>Public limited company</i>	12	10,948,792	7,364,877	3,583,915	9,106	853,941	14,705,501	
Syarikat sendirian berhad <i>Private limited company</i>	2,863	68,207,268	32,392,545	35,814,723	113,947	5,917,855	96,277,557	
Perkongsian <i>Partnership</i>	}	4	14,367	6,853	7,514	35	836	1,378
Perkongsian liabiliti terhad <i>Limited liabilities partnership</i>								

Jadual 4: Statistik utama aktiviti OGSE mengikut hak milik, 2023*Table 4: Principal statistics of OGSE activities by ownership, 2023*

Hak milik <i>Ownership</i>	Bilangan pertubuhan <i>Number of establishments</i>	Nilai output kasar <i>Value of gross output</i>	Nilai input perantaraan <i>Value of intermediate input</i>	Nilai ditambah <i>Value added</i>	Bilangan pekerja <i>Number of persons engaged</i>	Gaji & upah <i>Salaries & wages</i>	Nilai harta tetap <i>Value of fixed assets</i>
		(RM '000)	(RM '000)	(RM '000)		(RM '000)	(RM '000)
Jumlah <i>Total</i>	2,894	79,193,943	39,778,726	39,415,216	123,288	6,778,182	110,986,052
Residen Malaysia <i>Malaysian residents</i>	2,884	61,601,951	36,022,266	25,579,685	121,107	6,430,849	34,315,912
Bukan residen Malaysia <i>Non-Malaysian residents</i>	10	17,591,991	3,756,461	13,835,531	2,181	347,334	76,670,140
Hak milik bersama <i>Joint ownership</i>							

Jadual 5: Bilangan pekerja dan gaji & upah aktiviti OGSE mengikut kategori pekerja dan jantina, 2023
Table 5: Number of persons engaged and salaries & wages of OGSE activities by category of workers and sex, 2023

Kategori pekerja Category of workers	Bilangan pekerja Number of persons engaged			Gaji & upah Salaries & wages (RM '000)
	Jumlah Total	Lelaki Male	Perempuan Female	
Jumlah (A+B+C) <i>Total (A+B+C)</i>	123,288	96,896	26,392	6,778,182
A. Jumlah pemilik yang bekerja, rakan niaga yang aktif dan pekerja keluarga tanpa gaji <i>Totally working proprietors, active business partners and unpaid family workers</i>	741	568	173	-
B. Jumlah pekerja bergaji (sepenuh masa) <i>Total paid employees (full-time)</i>	120,517	94,624	25,893	6,738,238
Pengurus <i>Managers</i>	10,229	7,444	2,785	1,488,745
Profesional <i>Professionals</i>	13,953	9,274	4,679	1,443,180
Juruteknik dan profesional bersekutu <i>Technicians and associate professionals</i>	16,866	15,075	1,791	1,061,468
Pekerja sokongan perkeranian <i>Clerical support workers</i>	13,896	4,368	9,528	558,256
Pekerja perkhidmatan dan jualan <i>Services and sales workers</i>	6,807	4,420	2,387	284,565
Pekerja kemahiran dan pekerja pertukangan yang berkaitan <i>Craft and related trade workers</i>	31,845	30,730	1,115	988,107
Operator mesin & loji, dan pemasang <i>Plant & machine operators, and assemblers</i>	15,004	13,689	1,315	595,014
Pekerja asas <i>Elementary occupations</i>	11,917	9,624	2,293	318,902
C. Jumlah pekerja bergaji (sambilan) <i>Total paid employees (part-time)</i>	2,030	1,704	326	39,944

Jadual 5.1: Bilangan pekerja dan gaji & upah aktiviti OGSE bagi segmen Perindustrian mengikut kategori pekerja dan jantina, 2023
Table 5.1: Number of persons engaged and salaries & wages OGSE activities of Industrial segment by category of workers and sex, 2023

Kategori pekerja <i>Category of workers</i>	Bilangan pekerja <i>Number of persons engaged</i>			Gaji & upah <i>Salaries & wages</i> (RM '000)
	Jumlah <i>Total</i>	Lelaki <i>Male</i>	Perempuan <i>Female</i>	
Jumlah (A+B+C) <i>Total (A+B+C)</i>	74,557	60,018	14,539	3,959,790
A. Jumlah pemilik yang bekerja, rakan niaga yang aktif dan pekerja keluarga tanpa gaji <i>Totally working proprietors, active business partners and unpaid family workers</i>	289	226	63	-
B. Jumlah pekerja bergaji (sepenuh masa) <i>Total paid employees (full-time)</i>	72,782	58,556	14,226	3,935,498
Pengurus <i>Managers</i>	5,276	3,841	1,435	860,916
Profesional <i>Professionals</i>	6,063	4,322	1,741	769,807
Juruteknik dan profesional bersekutu <i>Technicians and associate professionals</i>	8,997	8,008	989	635,218
Pekerja sokongan perkeranian <i>Clerical support workers</i>	7,625	2,149	5,476	311,702
Pekerja perkhidmatan dan jualan <i>Services and sales workers</i>	3,990	2,580	1,410	142,312
Pekerja kemahiran dan pekerja pertukangan yang berkaitan <i>Craft and related trade workers</i>	26,231	25,346	885	787,963
Operator mesin & loji, dan pemasang <i>Plant & machine operators, and assemblers</i>	8,494	7,244	1,250	277,305
Pekerja asas <i>Elementary occupations</i>	6,106	5,066	1,040	150,273
C. Jumlah pekerja bergaji (sambilan) <i>Total paid employees (part-time)</i>	1,486	1,236	250	24,292

Jadual 5.2: Bilangan pekerja dan gaji & upah aktiviti OGSE bagi segmen Perkhidmatan mengikut kategori pekerja dan jantina, 2023
Table 5.2: Number of persons engaged and salaries & wages OGSE activities of Services segment by category of workers and sex, 2023

Kategori pekerja <i>Category of workers</i>	Bilangan pekerja <i>Number of persons engaged</i>			Gaji & upah <i>Salaries & wages</i> (RM '000)
	Jumlah <i>Total</i>	Lelaki <i>Male</i>	Perempuan <i>Female</i>	
Jumlah (A+B+C) <i>Total (A+B+C)</i>	48,731	36,878	11,853	2,818,392
A. Jumlah pemilik yang bekerja, rakan niaga yang aktif dan pekerja keluarga tanpa gaji <i>Totally working proprietors, active business partners and unpaid family workers</i>	452	342	110	-
B. Jumlah pekerja bergaji (sepenuh masa) <i>Total paid employees (full-time)</i>	47,735	36,068	11,667	2,802,739
Pengurus <i>Managers</i>	4,953	3,603	1,350	627,829
Profesional <i>Professionals</i>	7,890	4,952	2,938	673,373
Juruteknik dan profesional bersekutu <i>Technicians and associate professionals</i>	7,869	7,067	802	426,250
Pekerja sokongan perkeranian <i>Clerical support workers</i>	6,271	2,219	4,052	246,554
Pekerja perkhidmatan dan jualan <i>Services and sales workers</i>	2,817	1,840	977	142,253
Pekerja kemahiran dan pekerja pertukangan yang berkaitan <i>Craft and related trade workers</i>	5,614	5,384	230	200,143
Operator mesin & loji, dan pemasang <i>Plant & machine operators, and assemblers</i>	6,510	6,445	65	317,709
Pekerja asas <i>Elementary occupations</i>	5,811	4,558	1,253	168,628
C. Jumlah pekerja bergaji (sambilan) <i>Total paid employees (part-time)</i>	544	468	76	15,653

Jadual 6: Bilangan pekerja dan gaji & upah aktiviti OGSE mengikut kategori kemahiran dan jantina, 2023
Table 6: Number of persons engaged and salaries & wages of OGSE activities by category of skills and sex, 2023

Kategori kemahiran Category of skills	Bilangan pekerja Number of persons engaged			Gaji & upah Salaries & wages (RM '000)
	Jumlah Total	Lelaki Male	Perempuan Female	
Jumlah (A+B+C) Total (A+B+C)	120,517	94,624	25,893	6,738,238
A. Mahir Skilled	41,048	31,793	9,255	3,993,394
Segmen Perindustrian Industrial segment	20,336	16,171	4,165	2,265,942
Segmen Perkhidmatan Services segment	20,712	15,622	5,090	1,727,452
B. Separuh mahir Semi-skilled	67,552	53,207	14,345	2,425,942
Segmen Perindustrian Industrial segment	46,340	37,319	9,021	1,519,283
Segmen Perkhidmatan Services segment	21,212	15,888	5,324	906,659
C. Berkemahiran rendah Low-skilled	11,917	9,624	2,293	318,902
Segmen Perindustrian Industrial segment	6,106	5,066	1,040	150,273
Segmen Perkhidmatan Services segment	5,811	4,558	1,253	168,628

Jadual 7: Bilangan pekerja dan gaji & upah aktiviti OGSE mengikut sijil tertinggi diperoleh dan jantina, 2023
Table 7: Number of persons engaged and salaries & wages of OGSE activities by highest certificate obtained and sex, 2023

Kategori sijil <i>Category of certificate</i>	Bilangan pekerja <i>Number of persons engaged</i>		
	Jumlah <i>Total</i>	Lelaki <i>Male</i>	Perempuan <i>Female</i>
Jumlah <i>Total</i>	123,288	96,896	26,392
Pascasiswazah <i>Postgraduate</i>	2,205	1,547	658
Ijazah sarjana muda / Diploma lanjutan atau yang setaraf <i>Bachelor / Advanced Diploma or equivalent</i>	32,417	23,497	8,920
Diploma <i>Diploma</i>	27,440	19,761	7,679
STPM atau yang setaraf <i>STPM or equivalent</i>	5,036	2,924	2,112
Sijil <i>Certificate</i>	15,908	14,655	1,253
SPM / SPM (V) atau yang setaraf <i>SPM / SPM (V) or equivalent</i>	30,598	26,435	4,163
Di bawah taraf kelulusan SPM / SPM (V) <i>Below SPM / SPM (V) qualification</i>	9,684	8,077	1,607

Jadual 7.1: Bilangan pekerja dan gaji & upah aktiviti OGSE bagi segmen Perindustrian mengikut sijil tertinggi diperoleh dan jantina, 2023
Table 7.1: Number of persons engaged and salaries & wages of OGSE activities of Industrial segment by highest certificate obtained and sex, 2023

Kategori sijil <i>Category of certificate</i>	Bilangan pekerja <i>Number of persons engaged</i>		
	Jumlah <i>Total</i>	Lelaki <i>Male</i>	Perempuan <i>Female</i>
Segmen Perindustrian <i>Industrial Segment</i>	74,557	60,018	14,539
Pascasiswazah <i>Postgraduate</i>	1,051	775	276
Ijazah sarjana muda / Diploma lanjutan atau yang setaraf <i>Bachelor / Advanced Diploma or equivalent</i>	17,830	13,617	4,213
Diploma <i>Diploma</i>	16,788	12,486	4,302
STPM atau yang setaraf <i>STPM or equivalent</i>	2,782	1,660	1,122
Sijil <i>Certificate</i>	9,640	8,926	714
SPM / SPM (V) atau yang setaraf <i>SPM / SPM (V) or equivalent</i>	18,317	15,791	2,526
Di bawah taraf kelulusan SPM / SPM (V) <i>Below SPM / SPM (V) qualification</i>	8,149	6,763	1,386

Jadual 7.2: Bilangan pekerja dan gaji & upah aktiviti OGSE bagi segmen Perkhidmatan mengikut sijil tertinggi diperoleh dan jantina, 2023
Table 7.2: Number of persons engaged and salaries & wages of OGSE activities of Services segment by highest certificate obtained and sex, 2023

Kategori sijil <i>Category of certificate</i>	Bilangan pekerja <i>Number of persons engaged</i>		
	Jumlah <i>Total</i>	Lelaki <i>Male</i>	Perempuan <i>Female</i>
Segmen Perkhidmatan <i>Services Segment</i>	48,731	36,878	11,853
Pascasiswazah <i>Postgraduate</i>	1,154	772	382
Ijazah sarjana muda / Diploma lanjutan atau yang setaraf <i>Bachelor / Advanced Diploma or equivalent</i>	14,587	9,880	4,707
Diploma <i>Diploma</i>	10,652	7,275	3,377
STPM atau yang setaraf <i>STPM or equivalent</i>	2,254	1,264	990
Sijil <i>Certificate</i>	6,268	5,729	539
SPM / SPM (V) atau yang setaraf <i>SPM / SPM (V) or equivalent</i>	12,281	10,644	1,637
Di bawah taraf kelulusan SPM / SPM (V) <i>Below SPM / SPM (V) qualification</i>	1,535	1,314	221

Jadual 8: Bilangan pekerja dan gaji & upah aktiviti OGSE mengikut taraf kewarganegaraan dan jantina, 2023
Table 8: Number of persons engaged and salaries & wages of OGSE activities by citizenship and sex, 2023

Sektor Sector	Bilangan pekerja Number of persons engaged					Gaji & upah Salaries & wages
	Jumlah Total	Lelaki Male	Perempuan Female			
		Warganegara Malaysia Malaysian citizens	Bukan warganegara Malaysia Non-Malaysian citizens	Warganegara Malaysia Malaysian citizens	Bukan warganegara Malaysia Non-Malaysian citizens	
Jumlah Total	123,288	85,551	11,345	25,583	809	6,778,182
Perlombongan dan pengkuarian Mining and quarrying	11,496	8,100	705	2,670	21	1,164,135
Pembuatan Manufacturing	12,365	8,604	777	2,848	136	708,002
Pembinaan Construction	50,696	33,810	8,022	8,368	496	2,087,654
Perkhidmatan Services	48,731	35,037	1,841	11,697	156	2,818,392

Jadual 9: Perbelanjaan modal dan nilai harta tetap bagi aktiviti OGSE, 2023
Table 9: Capital expenditure and value of fixed assets of OGSE activities, 2023

(RM '000)

Jenis harta <i>Type of assets</i>	Nilai buku bersih seperti pada 01.01.2023 <i>Net book value as at 01.01.2023</i>	Perbelanjaan modal <i>Capital expenditure</i>	Harta yang dijual dalam tahun 2023 <i>Assets sold during 2023</i>	Susut nilai semasa <i>Current depreciation</i>	Nilai buku bersih seperti pada 31.12.2023 <i>Net book value as at 31.12.2023</i>	Sewa yang dibayar dalam tahun 2023 <i>Rent paid during 2023</i>
Jumlah (A+B+C) <i>Total (A+B+C)</i>	101,979,370	8,111,532	68,399	1,700,682	110,986,052	770,966
A. Bangunan dan pembinaan lain <i>Buildings and other construction</i>	6,119,392	432,470	11,438	156,987	6,407,650	551,378
Segmen Perindustrian <i>Industrial segment</i>	1,670,546	152,862	9,151	81,949	1,738,583	478,662
Segmen Perkhidmatan <i>Services segment</i>	4,448,846	279,608	2,286	75,038	4,669,067	72,716
B. Jentera dan kelengkapan <i>Machinery and equipment</i>	81,265,967	2,415,511	52,958	1,281,062	84,931,400	198,023
Segmen Perindustrian <i>Industrial segment</i>	67,274,662	1,882,142	40,341	764,075	70,935,409	104,447
Segmen Perkhidmatan <i>Services segment</i>	13,991,305	533,369	12,617	516,987	13,995,991	93,576
C. Harta-harta lain <i>Other assets</i>	14,594,011	5,263,551	4,004	262,633	19,647,002	21,565
Segmen Perindustrian <i>Industrial segment</i>	6,790,402	5,179,006	2,042	173,094	11,833,272	9,665
Segmen Perkhidmatan <i>Services segment</i>	7,803,609	84,545	1,961	89,539	7,813,730	11,900

Jadual 10: Statistik utama PMKS aktiviti OGSE mengikut saiz, 2023
Table 10: Principal statistics MSMEs of OGSE activities by size, 2023

Saiz Size	Bilangan pertubuhan Number of establishments	Nilai output kasar Value of gross output (RM '000)	Nilai input perantaraan Value of intermediate input (RM '000)	Nilai ditambah Value added (RM '000)	Bilangan pekerja Number of persons engaged	Gaji & upah Salaries & wages (RM '000)	Nilai harta tetap Value of fixed assets (RM '000)
Mikro, Kecil & Sederhana <i>Micro, Small & Medium</i>	2,652	21,151,401	11,666,645	9,484,756	51,813	2,376,325	6,455,323
A. Mikro <i>Micro</i>	547	608,361	302,137	306,224	2,027	83,439	155,026
Perlombongan dan pengkuarian <i>Mining and quarrying</i>	29	21,144	11,833	9,310	92	4,092	7,901
Pembuatan <i>Manufacturing</i>	39	73,376	38,728	34,648	147	5,397	21,335
Pembinaan <i>Construction</i>	86	122,876	77,798	45,078	308	10,232	15,697
Perkhidmatan <i>Services</i>	393	390,965	173,778	217,187	1,480	63,718	110,092
B. Kecil <i>Small</i>	1,661	10,786,964	5,980,089	4,806,875	22,665	972,314	2,783,392
Perlombongan dan pengkuarian <i>Mining and quarrying</i>	105	1,160,555	552,729	607,826	1,444	87,659	150,899
Pembuatan <i>Manufacturing</i>	130	670,343	408,525	261,818	1,800	74,086	192,450
Pembinaan <i>Construction</i>	449	3,124,018	2,088,665	1,035,354	6,803	240,164	567,867
Perkhidmatan <i>Services</i>	977	5,832,047	2,930,170	2,901,877	12,618	570,406	1,872,176

Jadual 10: Statistik utama PMKS aktiviti OGSE mengikut saiz, 2023 (samb.)
Table 10: Principal statistics MSMEs of OGSE activities by size, 2023 (cont.)

Saiz Size	Bilangan pertubuhan Number of establishments	Nilai output kasar Value of gross output (RM '000)	Nilai input perantaraan Value of intermediate input (RM '000)	Nilai ditambah Value added (RM '000)	Bilangan pekerja Number of persons engaged	Gaji & upah Salaries & wages (RM '000)	Nilai harta tetap Value of fixed assets (RM '000)
Mikro, Kecil & Sederhana <i>Micro, Small & Medium</i>	2,652	21,151,401	11,666,645	9,484,756	51,813	2,376,325	6,455,323
C. Sederhana <i>Medium</i>	444	9,756,076	5,384,419	4,371,657	27,121	1,320,572	3,516,905
Perlombongan dan pengkuarian <i>Mining and quarrying</i>	29	1,610,245	709,390	900,855	1,457	103,440	596,930
Pembuatan <i>Manufacturing</i>	47	1,266,610	891,377	375,233	2,556	114,434	399,854
Pembinaan <i>Construction</i>	163	2,690,693	1,827,778	862,915	10,319	370,353	687,478
Perkhidmatan <i>Services</i>	205	4,188,528	1,955,873	2,232,655	12,789	732,345	1,832,644

Jadual 11: Aktiviti teras yang terlibat dengan aktiviti OGSE mengikut segmen, 2023

Table 11: Core activities involved in OGSE activities by segment, 2023

Kategori Categories			Aktiviti Activities	A. Perindustrian Industrial			B. Perkhidmatan Services	
				Jumlah	Perlombongan dan pengkuarian	Pembuatan	Pembinaan	Perkhidmatan
				Total	Mining and quarrying	Manufacturing	Construction	Services
Jumlah Output (RM '000) Total Output (RM '000)			79,193,943	28,101,476	9,936,494	15,402,695	25,753,278	
Jumlah Output Aktiviti OGSE (RM '000) Total Output Activities OGSE (RM '000)			59,301,300	16,757,800	7,497,900	12,873,700	22,171,900	
JUMLAH (%) Total (%)			100.0	100.0	100.0	100.0	100.0	
			2.0	6.8	1.3	1.4	1.9	
PENEROKAAN EXPLORATION	01	Geologi / simpanan Geological / reservoir	0.3	1.4	-	-	0.4	
	02	Perkhidmatan geofizik / perundingan - penerokaan Geophysical services / consultancy - exploration	0.8	3.4	0.4	0.6	0.7	
	03	Perkhidmatan pembangunan tapak / pengurusan simpanan Field development / reservoir management services	0.9	2.0	0.9	0.9	0.7	
			32.4	42.4	40.8	25.7	28.3	
PEMBANGUNAN DEVELOPMENT	04	Perundingan pengurusan projek Project management consultancy	4.1	4.4	3.0	1.7	4.9	
	05	Perundingan kejuruteraan Engineering consultancy	8.6	8.8	8.2	3.5	9.5	
	06	Perundingan kesihatan, keselamatan dan persekitaran (HSE) Health, safety and environment (HSE) consultancy	1.8	3.1	1.3	0.6	2.1	
	07	Perkhidmatan geofizik / perundingan - pembangunan Geophysical services / consultancy - development	0.4	1.7	0.2	0.3	0.4	
	08	Perkhidmatan geomatik Geomatics services	0.5	0.3	0.3	-	0.7	
	09	Perkhidmatan jaminan kualiti / kawalan kualiti Quality assurance (QA) / quality control (QC) services	1.4	1.4	0.6	1.4	1.8	

Jadual 11: Aktiviti teras yang terlibat dengan aktiviti OGSE mengikut segmen, 2023 (samb.)

Table 11: Core activities involved in OGSE activities by segment, 2023 (cont.)

Kategori Categories	Aktiviti Activities	A. Perindustrian Industrial				B. Perkhidmatan Services
		Jumlah	Perlombongan dan pengkuarian	Pembuatan	Pembinaan	Perkhidmatan
		Total	Mining and quarrying	Manufacturing	Construction	Services
Jumlah Output (RM '000) Total Output (RM '000)		79,193,943	28,101,476	9,936,494	15,402,695	25,753,278
Jumlah Output Aktiviti OGSE (RM '000) Total Output Activities OGSE (RM '000)		59,301,300	16,757,800	7,497,900	12,873,700	22,171,900
JUMLAH (%) Total (%)		100.0	100.0	100.0	100.0	100.0
PEMBANGUNAN DEVELOPMENT	10 Reka bentuk bangunan Building design	1.3	0.3	3.5	2.0	0.2
	11 Fabrikasi platform utama Major platform fabricator	0.5	1.0	0.9	0.9	0.2
	12 Fabrikasi platform kecil Minor platform fabricator	1.3	1.0	1.8	3.8	0.8
	13 Pembinaan kemudahan di daratan Construction of onshore facilities	3.8	1.4	10.4	2.0	1.3
	14 Pembinaan kemudahan luar pesisir Construction of offshore facilities	2.4	3.4	4.2	2.6	1.4
	15 Kapal sokongan luar pesisir offshore Offshore support vessel	1.1	1.7	0.6	1.2	1.3
	16 Kontraktor pemasangan saluran paip Pipeline installation contractor	2.4	1.4	4.2	3.2	1.6
	17 Floating storage and offloading (FSO) / pemilik floating production storage and offloading (FPSO) / operator / kontraktor	0.6	1.7	0.6	0.3	0.6
	18 Dasar laut (pembangunan) Subsea (development)	0.2	0.3	0.2	-	0.2
	19 Pelantar penggerudian Drilling rigs	0.2	2.4	-	0.3	0.0

Jadual 11: Aktiviti teras yang terlibat dengan aktiviti OGSE mengikut segmen, 2023 (samb.)

Table 11: Core activities involved in OGSE activities by segment, 2023 (cont.)

Kategori Categories	Aktiviti Activities	A. Perindustrian Industrial				B. Perkhidmatan Services
		Jumlah	Perlombongan dan pengkuarian	Pembuatan	Pembinaan	Perkhidmatan
		Total	Mining and quarrying	Manufacturing	Construction	Services
Jumlah Output (RM '000) Total Output (RM '000)		79,193,943	28,101,476	9,936,494	15,402,695	25,753,278
Jumlah Output Aktiviti OGSE (RM '000) Total Output Activities OGSE (RM '000)		59,301,300	16,757,800	7,497,900	12,873,700	22,171,900
PEMBANGUNAN DEVELOPMENT	JUMLAH (%) Total (%)	100.0	100.0	100.0	100.0	100.0
	20 Perkhidmatan penggerudian Drilling services	0.9	5.1	0.6	1.2	0.5
	21 Perkhidmatan telaga / penyiapan telaga Well services / well completions	0.7	3.1	0.2	0.9	0.7
		34.8	30.1	34.0	47.1	33.9
PENGELUARAN PRODUCTION	22 Perkhidmatan makmal Lab services	0.8	1.0	0.4	-	1.1
	23 Penyelenggaraan - paip & injap / struktur Maintenance - piping & valve / structural	3.1	3.1	4.3	5.2	2.3
	24 Penyelenggaraan - elektrik & instrumentasi Maintenance - electrical & instrumentation	3.8	0.7	5.4	7.2	2.9
	25 Penyelenggaraan - mekanikal (berputar) Maintenance - mechanical (rotating)	1.3	0.7	1.5	4.6	0.8
	26 Penyelenggaraan - mekanikal (statik) Maintenance - mechanical (static)	2.0	2.0	2.1	6.6	1.3
	27 Penyelenggaraan - saluran paip Maintenance - pipeline	1.8	2.0	2.0	3.2	1.6
	28 Penyelenggaraan - peralatan keselamatan Maintenance - safety equipment	2.3	2.7	2.8	3.8	1.8

Jadual 11: Aktiviti teras yang terlibat dengan aktiviti OGSE mengikut segmen, 2023 (samb.)

Table 11: Core activities involved in OGSE activities by segment, 2023 (cont.)

Kategori Categories	Aktiviti Activities	A. Perindustrian Industrial				B. Perkhidmatan Services
		Jumlah	Perlombongan dan pengkuarian	Pembuatan	Pembinaan	Perkhidmatan
		Total	Mining and quarrying	Manufacturing	Construction	Services
Jumlah Output (RM '000) Total Output (RM '000)		79,193,943	28,101,476	9,936,494	15,402,695	25,753,278
Jumlah Output Aktiviti OGSE (RM '000) Total Output Activities OGSE (RM '000)		59,301,300	16,757,800	7,497,900	12,873,700	22,171,900
PENGELUARAN PRODUCTION	JUMLAH (%) Total (%)	100.0	100.0	100.0	100.0	100.0
	29 Perkhidmatan tenaga manusia Manpower services	7.8	6.1	8.7	4.6	8.1
	30 Fabrikasi & pembaikan kecil Minor fabrication & repair	1.2	1.7	1.8	1.7	0.8
	31 Perkhidmatan bawah air Underwater services	0.8	1.4	0.7	1.2	0.7
	32 Perkhidmatan integriti aset Asset integrity services	0.5	0.3	0.1	0.9	0.7
	33 Kesihatan, keselamatan, persekitaran (HSE) & keselamatan Health, safety, environment (HSE) & security	2.1	1.7	1.1	1.7	2.7
	34 Pembersihan alam sekitar / pelupusan sisa Environmental clean-up / waste disposal	1.4	1.0	0.5	1.2	1.9
	35 Perkhidmatan kapal laut Marine vessel services	1.7	2.0	0.7	2.6	1.9
	36 Perkhidmatan helikopter / pengangkutan udara Helicopter / air transportation services	0.5	1.0	0.2	0.3	0.6
	37 Perkhidmatan pengangkutan darat Land transportation services	2.0	0.7	1.3	0.9	2.7
	38 Perkhidmatan pergudangan & penyimpanan Warehousing & storage services	1.0	1.7	0.3	0.9	1.4
	39 Kapal tangki kargo Cargo tankers	0.5	0.3	0.1	0.6	0.6

Jadual 11: Aktiviti teras yang terlibat dengan aktiviti OGSE mengikut segmen, 2023 (samb.)

Table 11: Core activities involved in OGSE activities by segment, 2023 (cont.)

Kategori Categories		Aktiviti Activities	A. Perindustrian Industrial			B. Perkhidmatan Services	
			Jumlah Total	Perlombongan dan pengkuarian Mining and quarrying	Pembuatan Manufacturing	Pembinaan Construction	Perkhidmatan Services
Jumlah Output (RM '000) Total Output (RM '000)		79,193,943	28,101,476	9,936,494	15,402,695	25,753,278	
Jumlah Output Aktiviti OGSE (RM '000) Total Output Activities OGSE (RM '000)		59,301,300	16,757,800	7,497,900	12,873,700	22,171,900	
JUMLAH (%) Total (%)		100.0	100.0	100.0	100.0	100.0	
		0.9	1.0	1.0	0.6	0.8	
DECOMMISSIONING	40	Kontraktor decommissioning Decommissioning contractor	0.9	1.0	1.0	0.6	0.8
			30.0	19.7	23.0	25.1	35.1
PRODUK PRODUCT	41	Bekalan & perkhidmatan bahan kimia Chemicals supply & services	5.1	5.1	2.6	4.9	6.2
	42	Dasar laut (produk) Subsea (products)	0.4	1.4	-	0.9	0.4
	43	Peralatan penggerudian Drilling equipment	0.9	1.4	1.0	1.2	0.7
	44	Elektrik Electrical	3.4	0.7	6.5	2.6	2.5
	45	Pemanasan, pengudaraan, dan penyaman udara Heating, ventilation, and air conditioning (HVAC)	0.7	-	1.3	0.3	0.6

Jadual 11: Aktiviti teras yang terlibat dengan aktiviti OGSE mengikut segmen, 2023 (samb.)
Table 11: Core activities involved in OGSE activities by segment, 2023 (cont.)

Kategori Categories	Aktiviti Activities	A. Perindustrian Industrial				B. Perkhidmatan Services
		Jumlah	Perlombongan dan pengkuarian	Pembuatan	Pembinaan	Perkhidmatan
		Total	Mining and quarrying	Manufacturing	Construction	Services
Jumlah Output (RM '000) Total Output (RM '000)		79,193,943	28,101,476	9,936,494	15,402,695	25,753,278
Jumlah Output Aktiviti OGSE (RM '000) Total Output Activities OGSE (RM '000)		59,301,300	16,757,800	7,497,900	12,873,700	22,171,900
JUMLAH (%) Total (%)		100.0	100.0	100.0	100.0	100.0
PRODUK PRODUCT	46 ICT	2.9	1.7	2.2	-	3.7
	47 Instrumentasi Instrumentation	1.4	-	0.4	1.4	2.0
	48 Penebat Insulation	0.4	-	0.8	0.9	0.2
	49 Sistem marin Marine system	1.1	2.7	1.0	-	1.1
	50 Mekanikal Mechanical	3.6	2.0	3.2	4.3	3.8
	51 Riser	0.2	-	-	-	0.3
	52 Peralatan berputar Rotating equipments	0.8	0.7	0.5	0.3	1.0
	53 Sistem keselamatan Safety system	1.3	0.7	0.9	2.0	1.5
	54 Injap Valves	1.6	1.0	0.3	1.2	2.3
	55 Peralatan gudang Warehouse equipment	2.0	1.4	0.8	2.0	2.7
56 Alatan bengkel Workshop tools	4.2	1.0	1.5	3.2	5.9	

Jadual 12: Alam Sekitar, Sosial dan Tadbir Urus (ESG) bagi aktiviti OGSE, 2023
Table 12: Environmental, Social and Governance (ESG) of OGSE activities, 2023

Elemen Element	Peratus tahap pemahaman berhubung Alam Sekitar, Sosial dan Tadbir urus (ESG) bagi aktiviti OGSE, 2023 Percentage of level of understanding regarding Environmental, Social, and Governance (ESG) of OGSE activities, 2023				
	1	2	3	4	5
	Tiada kesedaran <i>No awareness</i>	Sedar tetapi pada masa ini tidak menjejaki metrik prestasi ESG secara aktif <i>Aware but currently not actively tracking ESG performance metrics</i>	Menjejak dan mengukur prestasi ESG untuk kegunaan luaran <i>Tracking and measuring ESG performance for external usage</i>	Menjejak dan mengukur dan mendedahkan prestasi ESG secara terbuka atau kepada pemegang taruh <i>Tracking and measuring and disclosing ESG performance publicly or to external stakeholders</i>	Menjejak dan mengukur dan mendedahkan prestasi ESG secara umum atau kepada pemegang taruh, dan dengan sasaran dan sistem ESG yang jelas <i>Tracking and measuring and disclosing ESG performance publicly or to external stakeholders, and with clear ESG targets and system</i>
A. Alam Sekitar <i>Environmental</i>	5.2	32.8	27.6	24.4	9.9
Pelepasan <i>Emissions</i>	5.1	30.7	30.4	19.6	14.3
Pengurusan air <i>Water management</i>	4.9	30.8	27.9	26.9	9.6
Alam semula jadi dan Biodiversiti <i>Nature and Biodiversity</i>	5.4	37.7	21.7	26.7	8.5
Sisa dan Circulariti <i>Waste and Circularity</i>	5.1	35.7	30.8	19.8	8.7
Pengurusan tenaga <i>Energy management</i>	5.0	29.5	28.0	28.9	8.5
B. Sosial <i>Social</i>	4.0	25.0	25.0	31.0	15.0
Kesihatan dan keselamatan <i>Health and safety</i>	3.0	24.1	21.2	32.6	19.2
Hak asasi manusia dan hak pekerja <i>Human rights and labour practices</i>	3.1	23.8	29.3	25.1	18.6
Impak komuniti / tempatan <i>Local / community impact</i>	4.3	26.3	24.1	35.3	10.0
Kepelbagaian dan keterangkuman <i>Diversity and inclusion</i>	4.4	27.7	31.1	21.4	15.3
Pekerjaan <i>Employment</i>	3.9	23.9	21.7	39.1	11.4
Latihan <i>Training</i>	3.7	23.5	21.2	33.7	17.9

Jadual 12: Alam Sekitar, Sosial dan Tadbir Urus (ESG) bagi aktiviti OGSE, 2023 (samb.)
Table 12: Environmental, Social and Governance (ESG) of OGSE activities, 2023 (cont.)

Elemen Element	Peratus tahap pemahaman berhubung Alam Sekitar, Sosial dan Tadbir urus (ESG) bagi aktiviti OGSE, 2023 Percentage of level of understanding regarding Environmental, Social, and Governance (ESG) of OGSE activities, 2023				
	1	2	3	4	5
	Tiada kesedaran <i>No awareness</i>	Sedar tetapi pada masa ini tidak menjejaki metrik prestasi ESG secara aktif <i>Aware but currently not actively tracking ESG performance metrics</i>	Menjejak dan mengukur prestasi ESG untuk kegunaan luaran <i>Tracking and measuring ESG performance for external usage</i>	Menjejak dan mengukur dan mendedahkan prestasi ESG secara terbuka atau kepada pemegang taruh <i>Tracking and measuring and disclosing ESG performance publicly or to external stakeholders</i>	Menjejak dan mengukur dan mendedahkan prestasi ESG secara umum atau kepada pemegang taruh, dan dengan sasaran dan sistem ESG yang jelas <i>Tracking and measuring and disclosing ESG performance publicly or to external stakeholders, and with clear ESG targets and system</i>
C. Tadbir Urus Governance	3.8	24.0	25.8	29.9	16.5
Anti-sogokan dan rasuah <i>Anti-bribery and corruption</i>	3.6	21.5	21.2	34.8	18.9
Pengurusan rantaian bekalan <i>Supply chain management</i>	4.2	29.6	22.2	30.3	13.8
Privasi dan keselamatan data <i>Data privacy and security</i>	3.3	21.6	35.1	23.9	16.1

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NOTA TEKNIKAL
TECHNICAL NOTES



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1. PENDAHULUAN

Penerbitan ini mengukur prestasi industri Perkhidmatan dan Peralatan Minyak & Gas (OGSE) daripada aspek sumbangan dalam Keluaran Dalam Negeri Kasar (KDNK), nilai output, input, nilai ditambah, pekerja, gaji dan upah, struktur hak milik, taraf sah, perusahaan mikro, kecil dan sederhana (PMKS), aktiviti teras OGSE, maklumat alam sekitar, sosial dan tadbir urus dan statistik lain. Selain menjadi penanda aras baharu statistik OGSE di Malaysia, data yang dikeluarkan dalam penerbitan ini digunakan bagi mengukur pencapaian indikator dalam Pelan Hala Tuju Industri OGSE Kebangsaan 2021-2030.

2. SKOP DAN LIPUTAN

Banci OGSE meliputi semua pertubuhan yang terlibat dalam aktiviti perkhidmatan dan peralatan minyak & gas di Malaysia. Pertubuhan dalam Banci OGSE 2024 dikelaskan berdasarkan *Malaysia Standard Industrial Classification* (MSIC) 2008 Ver. 1.0 selaras dengan penggunaan *International Standard Industrial Classification* (ISIC) Ver. 4 yang dikeluarkan oleh United Nations Statistic Division (UNSD). Kumpulan yang diliputi dalam Banci OGSE 2024 tertumpu terutamanya dalam sektor perkhidmatan, kejuruteraan awam di sektor pembinaan, perkhidmatan kejuruteraan dan aktiviti sokongan kepada petroleum dan gas asli. Liputan bagi keseluruhan sektor merangkumi 265 industri seperti Jadual 1.

Jadual 1: Bilangan industri mengikut sektor

Sektor	Bilangan Industri
Perkhidmatan	150
Pembuatan	57
Pembinaan	55
Perlombongan dan Pengkuarian	3
Jumlah	265

Senarai MSIC terlibat bagi penyusunan penerbitan ini adalah seperti di **Lampiran 1**. Penerbitan ini dikategorikan kepada dua segmen iaitu:

2.1 Segmen Perindustrian

Segmen Perindustrian meliputi Sektor Pembuatan, Pembinaan dan Perlombongan dan Pengkuarian.

2.2 Segmen Perkhidmatan

Segmen Perkhidmatan pula terdiri daripada Sektor Perkhidmatan sahaja.

3. SUMBER RANGKA

Sumber rangka utama banci ini adalah daripada Malaysia Petroleum Resources Corporation (MPRC) dan Petroliaam Nasional Berhad (PETRONAS). Selain itu, rangka juga diperolehi daripada Banci Ekonomi 2023 (tahun rujukan 2022) melalui pengisian daripada Seksyen H (Perkhidmatan dan Peralatan Minyak & Gas).

4. JENIS AKTIVITI PERNIAGAAN

Jenis aktiviti perniagaan merujuk kepada aktiviti utama dan sekunder. Aktiviti utama merujuk kepada aktiviti yang mana pertubuhan menumpukan sebahagian besar sumbernya atau memberi sumbangan besar dari segi pendapatan. Aktiviti sekunder didefinisikan sebagai aktiviti sampingan kepada aktiviti utama. Klasifikasi industri bagi pertubuhan adalah berasaskan kepada aktiviti utama dan mengikut Piawaian Klasifikasi Industri Malaysia (MSIC) 2008 Versi 1.0 yang diselaraskan dengan *International Standard Industrial Classification of All Economic Activities (ISIC), Rev. 4, United Nations* dan pengubahsuaian mengikut keperluan tempatan.

5. KONSEP DAN DEFINISI

5.1 Pertubuhan perlu memenuhi kriteria berikut bagi melayakkan syarikat menjawab soal selidik Banci OGSE iaitu :

i. Kriteria 1

Berdaftar dengan Suruhanjaya Syarikat Malaysia (SSM) dan lain-lain

ii. Kriteria 2

Terlibat dalam aktiviti teras minyak dan gas

5.2 Penentuan Aktiviti Teras OGSE

Sebanyak 56 aktiviti teras OGSE yang telah dikenal pasti dan dibekalkan oleh MPRC kepada DOSM bagi pelaksanaan Banci OGSE. Senarai tersebut disaring daripada anggaran 1,200 *Standardised Work and Equipment Categories (SWEC) Code*. *SWEC Code* merujuk kepada kategori kerja yang terlibat dalam pembekalan barangan dan perkhidmatan kepada pemegang lesen yang dianugerahkan kontrak oleh PETRONAS. Senarai perincian aktiviti teras OGSE adalah seperti di **Lampiran 2**.

5.3 Definisi yang diguna pakai dikategorikan kepada empat sektor utama iaitu Perlombongan & pengkuarian, Pembuatan, Pembinaan dan Perkhidmatan mengikut kepada MSIC 2008 Versi 1.0 berasaskan *International Standard Industrial Classification of All Economic (ISIC) Revision 4*. Definisi tersebut adalah seperti berikut:

5.3.1 Perlombongan & pengkuarian

Perlombongan dan pengkuarian termasuk pengekstrakan mineral yang terjadi secara semulajadi seperti pepejal (batu arang dan bijih), cecair (petroleum) atau gas (gas asli). Pengekstrakan boleh dijalankan melalui pelbagai kaedah seperti perlombongan bawah tanah atau dedah, pengoperasian telaga, perlombongan dasar laut dan lain-lain. Perlombongan dan pengkuarian melibatkan dua subsektor iaitu aktiviti (i) Perlombongan mineral dan pengkuarian dan (ii) Perlombongan petroleum dan gas asli. Walau bagaimanapun, subsektor Perlombongan mineral & pengkuarian tidak diliputi dalam penerbitan ini.

5.3.2 Pembuatan

Perubahan fizikal atau kimia ke atas bahan atau komponen menjadi produk baru sama ada kerja itu dilakukan oleh jentera pacuan kuasa atau yang dijalankan dengan tangan, sama ada dilaksanakan di kilang atau di rumah pekerja dan sama ada barang keluaran dijual sama ada barang keluaran dijual secara borong atau runcit. Bagi sektor Pembuatan, subsektor berkaitan yang termasuk dalam penyusunan penerbitan ialah produk Tekstil, pakaian, kulit dan kasut, produk Kayu, perabot, keluaran kertas dan percetakan, produk Petroleum, kimia, getah dan plastik, produk Mineral bukan logam, logam asas dan produk logam, produk Elektrik, elektronik dan optikal dan Peralatan pengangkutan, pembuatan lain dan pembaikan.

5.3.3 Pembinaan

Pembinaan baru, pengubahsuaian, pembaikan dan perobohan. Pemasangan sebarang jenis jentera atau peralatan yang dipasang ketika pembinaan asal adalah diambil kira, demikian juga bagi pemasangan jentera atau peralatan selepas pembinaan asal tetapi memerlukan perubahan struktur bagi pemasangannya.

5.3.4 Perkhidmatan

Bagi sektor Perkhidmatan, subsektor berkaitan yang termasuk dalam penyusunan penerbitan ialah Bekalan air, pembetulan, pengurusan sisa dan aktiviti pemulihan, Perdagangan borong & runcit, Pengangkutan dan penyimpanan, Makanan dan minuman, Maklumat dan komunikasi, Kewangan, Perkhidmatan hartanah, Profesional, Pentadbiran dan khidmat sokongan, Pendidikan dan Kesihatan.

6. TAHUN BANCİ DAN TAHUN RUJUKAN

Tahun banci merujuk kepada tahun pelaksanaan banci manakala tahun rujukan bagi penerbitan ini adalah tahun takwim 2023. Pertubuhan yang mempunyai tahun kewangan yang berbeza daripada tahun takwim diminta menyediakan laporan mengikut tahun perakaunan atau kewangan yang meliputi sekurang-kurangnya enam (6) bulan dalam tahun rujukan.

7. UNIT PELAPOR

Banci OGSE 2024 menggunakan pertubuhan sebagai unit pelaporan.

7.1 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”. Sekiranya pertubuhan menjalankan pelbagai aktiviti, unit yang bergiat dalam aktiviti yang berasingan dalam satu lokasi yang sama adalah terdiri daripada entiti pertubuhan yang berbeza.

7.2 Enterpris ditakrifkan sebagai:

7.2.1 Keseluruhan aktiviti ekonomi beroperasi di bawah satu entiti yang sah;

7.2.2 Mungkin mengandungi lebih daripada sebuah pertubuhan;

7.2.3 Satu unit institusi yang terlibat dalam pengeluaran barangan dan perkhidmatan;

7.2.4 Entiti ini mampu memiliki aset, mempunyai tanggungan dan terlibat dalam aktiviti ekonomi serta urusan niaga entiti lain; dan

7.2.5 Ia mungkin sebuah perbadanan, syarikat kerjasama, persatuan, perkongsian, hak milik perseorangan atau mungkin dalam bentuk persatuan yang lain.

7.3 Statistik yang dilaporkan dalam penerbitan ini adalah berdasarkan lokasi pertubuhan berada yang mencerminkan keadaan dan prestasi pertubuhan berdasarkan kawasan geografi di mana pertubuhan beroperasi.

8. TARAF SAH

Taraf sah sesebuah pertubuhan telah ditakrifkan seperti berikut:

8.1 Hak milik perseorangan

Ia merujuk kepada perniagaan yang dimiliki dan dijalankan oleh orang perseorangan semata-mata untuk mendapatkan keuntungan sendiri. Pemilik mempunyai hak mutlak atas segala urusan pertubuhannya.

8.2 Perkongsian

Ia merujuk kepada sekumpulan individu yang telah bersetuju mengikat kontrak dan menjalankan perniagaan dengan matlamat untuk memperoleh keuntungan. Perniagaan tersebut diuruskan oleh kesemua mereka atau salah seorang daripada mereka yang bertindak mewakili semua pihak. Perkongsian perniagaan ini hendaklah mengandungi sekurang-kurangnya dua orang ahli dan tidak melebihi had maksimum dua puluh orang.

8.3 Perkongsian liabiliti terhad

Merujuk kepada perniagaan entiti yang dikawal selia di bawah Akta Perkongsian Liabiliti Terhad 2012. Ia memberi perlindungan liabiliti terhad kepada rakan-rakan kongsinya sama seperti liabiliti terhad yang dinikmati oleh pemegang saham sesebuah syarikat. Ia juga memberi fleksibiliti peraturan perniagaan dalaman melalui pengaturan perkongsian yang serupa dengan sesebuah perkongsian konvensional.

8.4 Syarikat sendirian berhad

Merupakan syarikat persendirian yang ditubuhkan bagi tujuan menjalankan perniagaan dengan matlamat untuk mencari keuntungan. Saham dipegang secara tertutup oleh pemegang-pemegang saham yang mempunyai kawalan terhadap operasi syarikat;

Ciri-ciri:

- i. Dikawal di bawah Akta Syarikat 1965 dan merupakan entiti yang sah terpisah daripada pemilik;
- ii. Dimiliki oleh 2 - 50 orang pemegang saham;
- iii. Pemilik syarikat mempunyai liabiliti terhad;
- iv. Pemegang saham yang memiliki 51 peratus atau lebih daripada jumlah saham syarikat berhak untuk mengawal syarikat tersebut. Saham syarikat boleh dijual beli tetapi tidak dilakukan di pasaran terbuka;
- v. Penjualan saham mesti dengan persetujuan pemegang saham yang lain
- vi. Tidak disenaraikan di Bursa; dan
- vii. Jangka hayat perniagaan adalah panjang dan boleh dikenali perkataan Sendirian Berhad (Sdn. Bhd.) pada akhir nama syarikat.

8.5 Syarikat awam berhad

Syarikat awam berhad merupakan perniagaan yang ditubuhkan dengan tanggungan berhad, oleh sekurang-kurangnya dua orang untuk menjalankan perniagaan dengan tujuan untuk mencari keuntungan. Saham syarikat awam berhad ini dipegang secara terbuka dan bagi sesebuah syarikat yang disenaraikan di Bursa Malaysia, sahamnya boleh bertukar milik secara bebas;

Ciri-ciri:

- i. Dikawal di bawah Akta Syarikat 1965 dan merupakan entiti yang sah terpisah daripada pemilik;
- ii. Dimiliki oleh pemegang-pemegang saham dan tiada had bagi pemilik saham berkenaan;
- iii. Pengurusan dan kawalan syarikat adalah di bawah tanggungjawab Lembaga Pengarah yang dilantik oleh pemegang saham; dan
- iv. Disenaraikan di Bursa Malaysia.

8.6 Syarikat koperasi

Koperasi adalah organisasi yang ditubuhkan untuk faedah bersama ahli dan didaftarkan di bawah Akta Koperasi 1993. Kumpulan wang yang ada adalah milik bersama untuk memenuhi keperluan ahli-ahlinya.

8.7 Perbadanan awam

Ia merupakan sebuah perbadanan yang ditubuhkan di bawah Akta Khas Parlimen atau Dewan Perundangan Negeri.

8.8 Pertubuhan persendirian tidak mencari keuntungan

Ia merujuk kepada syarikat tanpa saham yang ditubuhkan dengan tanggungan berhad. Kebanyakan syarikat ini terdiri daripada pertubuhan kebajikan, keagamaan, pendidikan, kesihatan, kebudayaan, rekreasi dan pertubuhan yang memberikan perkhidmatan sosial dan kemasyarakatan kepada isi rumah. Perkhidmatan diberikan secara percuma atau pada harga yang tidak melebihi kos perkhidmatan (subsidi). Sebarang keuntungan yang diperolehi dilabur semula ke dalam pertubuhan berkenaan.

9. STRUKTUR HAK MILIK

Hak milik sesebuah pertubuhan dikelaskan mengikut taraf residen pemilik/pemilik-pemilik modal berbayar yang terbesar (melebihi 50%) dan bukannya mengikut taraf kewarganegaraan mereka. Dalam kes di mana setiap pihak (Residen Malaysia dan Bukan Residen Malaysia) memegang bilangan saham yang sama banyak dalam perniagaan berkenaan, maka pertubuhan tersebut telah dikelaskan di bawah "Hak Milik Bersama".

9.1 Residen Malaysia ialah individu, syarikat atau organisasi lain yang lazimnya terletak di Malaysia untuk jangka masa sekurang-kurangnya satu tahun. Cawangan dan anak syarikat asing yang didaftarkan/diperbadankan di Malaysia adalah dianggap sebagai Residen Malaysia.

9.2 Bukan Residen Malaysia ialah individu, syarikat atau organisasi lain yang lazimnya terletak di negara selain Malaysia. Cawangan dan anak syarikat milik Residen Malaysia di luar negeri juga dianggap sebagai Bukan Residen Malaysia.

9.3 Hak milik bersama merujuk kepada badan atau organisasi yang dimiliki oleh Kerajaan Persekutuan, Negeri dan Tempatan.

10. NILAI OUTPUT KASAR

10.1 Nilai output kasar **Perlombongan & pengkuarian, Pembuatan dan Pembinaan** ditakrifkan dengan memasukkan elemen berikut:

Nilai jualan mineral/ produk kuari/ produk pembuatan dan nilai kerja pembinaan

- + Nilai barangan yang dijual dalam keadaan yang sama seperti dibeli
- Kos barangan yang dijual dalam keadaan yang sama seperti yang dibeli
- + Perbelanjaan modal ke atas binaan sendiri
- + Pendapatan daripada perkhidmatan perindustrian yang diberikan kepada orang lain

- + Pendapatan daripada kerja perindustrian lain
- + Penerimaan bayaran daripada skrap, tenaga elektrik, produk sisa, dll. yang dijual kepada orang lain
- + Penerimaan komisen dan brokeraj
- + Semua nilai output lain (seperti penerimaan perkhidmatan bukan perindustrian, misalnya bayaran pengurusan, sewa harta, dll.)
- + Stok akhir barangan siap
- Stok awal barangan siap
- + Stok akhir barangan sedang diproses
- Stok awal barangan sedang diproses
- + Perbelanjaan penyelidikan dan pembangunan (Dalam)

10.2 Nilai output kasar **Perkhidmatan** ditakrifkan dengan memasukkan elemen berikut:

- + Nilai jualan barangan yang dibeli untuk dijual semula
- + Perkhidmatan pengurusan
- + Komisen dan pembrokeran yang diterima
- + Yuran yang diterima daripada keahlian
- + Pendapatan daripada sewa yang diterima kecuali tanah
- + Pendapatan operasi lain
- + Cukai perkhidmatan dan caj perkhidmatan
- Nilai barang yang dibeli untuk dijual semula dalam keadaan sama seperti dibeli
- + Stok akhir
- Stok awal
- + Perbelanjaan penyelidikan dan pembangunan (Dalam)

10.3 Nilai **output OGSE** merujuk kepada nilai barangan dan perkhidmatan bagi aktiviti OGSE yang dilakukan oleh pertubuhan.

11. NILAI INPUT PERANTARAAN

11.1 Nilai input perantaraan **Perlombongan & pengkuarian, Pembuatan dan Pembinaan** ditakrifkan dengan memasukkan elemen berikut:

Nilai bahan dan bekalan yang digunakan

- + Kos kerja perindustrian (memproses) yang dibuat oleh orang lain
- + Tenaga elektrik dan air yang dibeli
- + Nilai bahan pembakar, pelincir dan gas yang digunakan
- + Kos bahan yang digunakan bagi pembaikan dan penyelenggaraan harta tetap (termasuk pembayaran kepada pihak lain ke atas kerja ini)
- + Pembayaran terhadap perkhidmatan bukan perindustrian (termasuk bayaran bagi pengangkutan keluar barangan, perjalanan, pengurusan, bayaran perundangan, teknologi maklumat, pengiklanan, bank, pos, telekomunikasi, dll.)

- + Semua kos input lain (termasuk kos latihan dan nilai pakaian percuma yang disediakan kepada pekerja)

11.2 Nilai input perantaraan **Perkhidmatan** ditakrifkan dengan memasukkan elemen berikut:

Pembelian barangan, bahan dan perkhidmatan

- + Premium insurans
- + Royalti dan bayaran paten
- + Caj bank
- + Pembelian elektrik dan air
- + Pembelian bahan pembakar, pelincir dan gas
- + Perbelanjaan penyelidikan dan pembangunan
- + Perbelanjaan pematuhan alam sekitar
- + Perbelanjaan operasi lain

12. NILAI DITAMBAH

Nilai ditambah adalah perbezaan di antara output kasar dan input perantaraan. Ini hampir menyamai dengan keuntungan perniagaan, gaji dan upah, susut nilai dan cukai tidak langsung; campur faedah yang dibayar dan tolak faedah yang diterima.

13. PEKERJA

Bilangan pekerja merujuk kepada bilangan orang yang bekerja pada bulan Disember atau pada tempoh pembayaran gaji terakhir bagi tahun rujukan. Bilangan orang yang bekerja dikategorikan seperti berikut:

13.1 Pemilik yang bekerja dan pekerja keluarga tidak bergaji

i. Pemilik yang bekerja dan rakan niaga yang aktif

Kategori ini merujuk kepada semua pemilik perseorangan dan rakan niaga, sambilan atau sepenuh masa, yang bekerja dengan aktif dalam sesebuah pertubuhan itu. Justeru, ia tidak termasuk rakan niaga yang tidak aktif.

ii. Pekerja keluarga tidak bergaji

Kategori ini meliputi semua ahli isi rumah kepada pemilik pertubuhan yang melaksanakan kerja tertentu (sepenuh masa atau sambilan) dan bekerja sekurang-kurangnya satu pertiga daripada waktu bekerja biasa yang diamalkan oleh pertubuhan berkenaan tanpa mendapat bayaran secara tetap, sama ada dalam bentuk wang tunai atau harta benda bagi kerja yang dilakukan. Biasanya pekerja berkenaan mendapat makanan, tempat tinggal dan bantuan lain sebagai sebahagian daripada ahli isi rumah pemilik tersebut dan terus mendapatnya sama ada ia bekerja atau tidak dalam pertubuhan itu.

13.2 Pekerja bergaji (sepenuh masa)

Merujuk kepada semua pekerja bergaji (sepenuh masa) yang bekerja sekurang-kurangnya enam jam sehari dan/atau 20 hari sebulan. Pekerja bergaji (sepenuh masa) telah dikategorikan berdasarkan Piawaian Pengkelasan Pekerjaan Malaysia (MASCO) 2020 seperti berikut:

i. Pengurus dan Profesional meliputi:**a. Pengurus**

Merujuk kepada mereka yang menggubal, menganalisa, merumus, mengarah dan memberi nasihat tentang dasar kerajaan, dan membuat, memansuhkan undang-undang, kaedah dan peraturan awam, dan mewakili serta bertindak bagi pihak kerajaan, dan memantau pentafsiran dan pelaksanaan dasar dan undang-undang kerajaan, atau menjalankan tugas yang seumpamanya bagi pihak pertubuhan berkepentingan khas, atau mengatur, memimpin, mengawal dan menyelaras dasar dan aktiviti perusahaan, organisasi, jabatan atau seksyen dalamnya; dan

b. Profesional

Merujuk kepada mereka yang bertanggung jawab untuk meningkatkan ilmu pengetahuan sedia ada, mengaplikasikan konsep dan teori saintifik atau artistik, mengajar tentang perkara tersebut dengan cara bersistematik, atau terlibat dalam apa-apa gabungan tiga aktiviti di atas.

ii. Juruteknik dan profesional bersekutu

Merujuk kepada mereka yang melakukan tugas teknikal dan tugas yang berkaitan dengan penyelidikan dan pengaplikasian konsep sains atau seni dan kaedah operasi, dan peraturan kerajaan atau perniagaan.

iii. Perkeranian, pekerja perkhidmatan & jualan, kemahiran khas, operator mesin & loji dan pekerjaan yang berkaitan:**a. Pekerja sokongan perkeranian**

Merujuk kepada mereka yang merekod, mengurus, menyimpan dan mendapatkan maklumat yang berkaitan, dan menjalankan tugas-tugas perkeranian berhubung dengan operasi pentadbiran, pengendalian wang, urusan perjalanan, permintaan maklumat dan janji temu.

b. Pekerja perkhidmatan dan jualan

Merujuk kepada mereka yang menyediakan perkhidmatan peribadi berkaitan dengan perjalanan, pengemasan, catering, penjagaan diri, atau perlindungan dari kebakaran dan undang-undang yang berkaitan, atau menunjuk cara dan menjual barangan di kedai borong atau runcit dan pertubuhan seumpamanya termasuk di gerai dan pasar.

c. Pekerja kemahiran dan pekerja pertukangan yang berkaitan

Merujuk kepada mereka yang mengaplikasikan pengetahuan dan kemahiran khusus dalam bidang perlombongan dan pembinaan,

penempatan logam, dan mendirikan stuktur logam; membuat, melaraskan, menyelenggara dan membaik pulih jentera, kelengkapan atau peralatan; menjalankan kerja pencetakan; dan mengeluarkan atau memproses barang makanan, tekstil atau kayu, logam dan barangan lain termasuk barang kraftangan; dan

d. Operator mesin & loji, dan pemasang

Merujuk kepada mereka yang mengendalikan dan mengawasi jentera dan kelengkapan perindustrian dan pertanian; memandu dan mengendalikan kereta api, kenderaan bermotor, jentera dan kelengkapan bergerak; atau memasang bahagian komponen produk mengikut spesifikasi dan prosedur yang ketat.

e. Pekerja asas

Merujuk kepada mereka yang menjalankan tugas yang mudah, rutin dan tidak sistematik yang biasanya memerlukan penggunaan perkakas tangan atau dengan sokongan mesin yang mudah, dan memerlukan tenaga fizikal yang banyak.

13.3 Pekerja bergaji (sambilan)

Ia merujuk kepada semua pekerja bergaji yang bekerja kurang daripada enam jam sehari dan/ atau kurang daripada 20 hari sebulan.

14. KATEGORI KEMAHIRAN

Kategori kemahiran dikelaskan berdasarkan Piawaian Pengkelasan Pekerjaan Malaysia (MASCO) 2020 adalah seperti berikut:

14.1 Pekerja mahir

Pengurus, Profesional dan Juruteknik dan profesional bersekutu;

14.2 Pekerja separuh mahir

Pekerja sokongan perkeranian, perkhidmatan dan jualan, dan Pekerja kemahiran & pekerja pertukangan yang berkaitan serta Operator mesin & loji dan pemasang; dan

14.3 Pekerja berkemahiran rendah

Pekerja asas

15. GAJI & UPAH

Semua pembayaran (gaji, upah, bonus, komisyen, bayaran lebih masa dan elaun tunai termasuk belanja sara hidup, perumahan, kereta, makanan dan sebagainya) yang dibuat sepanjang tahun rujukan meliputi semua pekerja bergaji dalam setiap kategori pekerja yang diambil secara langsung termasuk jumlah bayaran yang dibuat adalah sebelum ditolak cukai pendapatan dan caruman pekerja kepada Kumpulan Wang Simpanan Pekerja (KWSP) / Pertubuhan Keselamatan Sosial (PERKESO) / Kumpulan wang

simpanan lain / Kumpulan wang persaraan (KWAP). Caruman majikan kepada kumpulan wang yang di atas hendaklah dikecualikan.

16. NILAI HARTA TETAP

Nilai harta tetap merupakan nilai aset bagi pegangan atau penggunaan entiti tersebut dalam satu tempoh masa. Nilai harta tetap boleh dibezakan antara aset bukan kewangan dan aset kewangan. Bagi aset bukan kewangan, ia dibezakan antara aset pengeluaran dan aset bukan pengeluaran. Aset pengeluaran terdiri daripada struktur, jentera & kelengkapan dan aset lain. Jenis harta adalah ditakrifkan seperti berikut:

16.1 Bangunan dan pembinaan lain:

- i. **Tempat kediaman** yang mana pada keseluruhannya atau sebahagian besarnya terdiri daripada tempat kediaman.
- ii. **Bukan tempat kediaman** adalah bangunan untuk kegunaan perindustrian, awam dan komersil; cth kilang, gudang, bangunan pejabat, stor, restoran, garaj, kedai, hospital, sekolah dan sebagainya.
- iii. **Binaan lain** termasuk pembinaan atau pengubahsuaian jalan, landasan keretapi, pembentungan, jambatan, pelabuhan, medan letak kereta, saluran paip dan sebagainya.
- iv. **Tanah** termasuk nilai tapak tanah dengan tidak mengambil kira pembangunan dan struktur. (cth. tanah tebus guna dan persisiran pantai yang ditambah bagi mewujudkan daratan).

16.2 Jentera dan kelengkapan:

- i. **Jentera dan kelengkapan utama**
Jentera dan kelengkapan termasuklah jentera penjaan kuasa, mesin dan kelengkapan pejabat, jentera pertukangan logam, jentera pembinaan dan jentera industri lain, kren, forklift dan sebagainya, kontena tahan lama, peralatan dan perkakasan yang digunakan oleh profesional dan jentera serta alat lain termasuk pengubahsuaian besar dan penambahbaikan terhadap jentera dan peralatan jenis ini.
- ii. **Dron**
Dron atau sistem pesawat tanpa pemandu (UAS) bermaksud pesawat dan unsur-unsur yang berkaitan dengannya yang beroperasi tanpa juruterbang di atas kapal.
- iii. **Alat pengangkutan**
Merujuk kepada alat pengangkutan yang digunakan untuk pemindahan barangan atau orang ke destinasi bagi tujuan perniagaan.
- iv. **Teknologi maklumat dan komunikasi**
 - a. **Perkakasan komputer**
Merujuk kepada semua perkakasan prosesan, penyimpanan,

penghantaran data dan maklumat yang berkaitan dengan sistem komputer.

b. Perisian komputer

Merujuk kepada perisian untuk pengoperasian sistem komputer dan pangkalan data sama ada dibangunkan sendiri, ditempah khas atau dibeli (tidak ditempah khas).

c. Peralatan telekomunikasi

Merujuk kepada telefon mudah alih, *personal digital assistants* (PDAs), piring satelit, peralatan pandang dengar (cth. radio, televisyen) dan pemancar dan penerima televisyen / radio lain.

v. Perabot dan pemasangan

Perabot dan pemasangan meliputi semua perkakasan yang diperlukan bagi menghias dan melengkapkan sesebuah bangunan cth. kerusi, meja, permaidani dan sebagainya.

vi. Pembangunan tanah

Termasuk nilai kerja membersihkan, menyediakan tapak binaan serta membuat landskap tetapi tidak termasuk nilai tanah sebelum pembangunan dibuat. Ia termasuk juga perbelanjaan terhadap pembersihan dan tebus guna tanah, tidak kira sama ada ini akan memberi tambahan kepada keluasan tanah yang ada atau tidak. Contohnya tali air dan projek kawalan banjir, empangan dan benteng yang merupakan sebahagian daripada projek ini, membersihkan dan menanam semula di kawasan kayu balak dan hutan.

16.3 Harta-harta lain merujuk kepada harta tak ketara yang meliputi paten dan muhibah.

i. **Paten** merujuk kepada hak eksklusif kepada pemiliknya untuk membuat ciptaan mekanikal yang berkuasa untuk beberapa tahun. Paten direkodkan pada kos.

ii. **Muhibah** wujud daripada nama baik sesebuah syarikat dan kesetiaan pelanggan yang diperolehi. Apabila sesuatu perniagaan dibeli dengan harga melebihi nilai harta bersih, maka lebihan ini dianggap sebagai muhibah.

iii. **Kerja dalam pelaksanaan** merujuk kepada harta (cth. bangunan, jentera & kelengkapan dan lain-lain) separuh siap dan masih belum dimodalkan. Sebagai contoh, jika syarikat sedang membina aset seperti bangunan yang akan digunakan dalam pengeluaran, dan aset itu hanya separuh siap, jumlah yang dibelanjakan akan direkodkan sebagai kerja dalam pelaksanaan.

16.4 Nilai buku bersih seperti pada awal tahun kewangan

Nilai setelah mengambil kira susut nilai pada tahun sebelum.

16.5 Baharu termasuk import (baharu & terpakai)

Meliputi perolehan harta baharu termasuk pengubahsuaian atau harta yang diimport kerana ia merupakan harta baharu yang diperoleh untuk ekonomi Malaysia. Ini merujuk kepada harta tetap yang belum pernah digunakan di Malaysia, termasuk harta tetap yang diimport baharu.

16.6 Aset terpakai (Malaysia)

Merujuk kepada semua harta yang dahulunya digunakan dalam Malaysia termasuk semua harta yang telah dibaikpulih atau diubahsuai sebelum pemilikan hendaklah dianggap sebagai terpakai.

16.7 Membuat / membina sendiri

Membuat / membina sendiri ke atas harta tetap yang dikeluarkan oleh pertubuhan ini untuk kegunaan sendiri, kos bagi semua kerja yang dijalankan pada tahun itu hendaklah direkodkan. Sebarang kos *overhead* yang diperuntukkan bagi kerja ini hendaklah dimasukkan.

Urus niaga modal pada amnya hendaklah direkodkan apabila pemilikan diperoleh. Kebiasaannya ia hendaklah direkodkan serentak pada masa harta tersebut disiapkan sepenuhnya dan diserahkan untuk penyeliaan pertubuhan itu. Ini adalah merupakan asas merekod perbelanjaan bagi semua harta tetap kecuali bagi kerja-kerja binaan. Dalam kes pembinaan, nilai kerja pembinaan ialah nilai kerja yang dijalankan ke atas projek yang disempurnakan pada tahun rujukan, dicampur dengan nilai kerja yang masih dijalankan pada akhir tahun rujukan dan ditolak nilai kerja pada awal tahun rujukan.

16.8 Harta yang dijual atau dilupuskan / ditamatkan penggunaannya dalam tahun 2023

Dalam tahun rujukan tanpa mengira keadaannya, hendaklah dilaporkan mengikut hasil sebenar yang diperoleh.

16.9 Keuntungan (+) / Kerugian (-) daripada jualan / penilaian semula harta

Merujuk kepada sesuatu harta dijual melebihi / kurang daripada nilai buku bersih, maka keuntungan / kerugian daripada jualan harta diperoleh hendaklah dilaporkan dalam ruangan. Dalam keadaan yang serupa, sesuatu harta boleh dinilai semula untuk mencerminkan harga pasaran semasa. Keuntungan / kerugian daripada penilaian semula harta yang diperoleh juga hendaklah dilaporkan. Jika berlaku kerugian, angka hendaklah ditulis bermula dengan simbol (-).

16.10 Susut nilai / pelunasan semasa dalam tahun 2023

Merupakan kehilangan atau kejatuhan nilai bagi sesuatu harta disebabkan oleh haus dan lusuh, luput atau kejatuhan kekal dalam nilai pasaran (susut nilai yang dibenarkan untuk maksud cukai boleh diterima). Nilai yang dilaporkan dalam

penyata akaun bagi tiap-tiap kelas harta tetap hendaklah dilaporkan. Ini termasuk juga perlunasan tanah pajak.

16.11 Nilai buku bersih seperti pada hujung tahun kewangan

- + nilai buku bersih seperti pada awal tahun kewangan
- + baharu termasuk import (baharu & terpakai)
- + aset terpakai Malaysia
- + membuat / membina sendiri
- harta yang dijual / dilupuskan / ditamatkan
- +/- keuntungan / kerugian daripada jualan / penilaian semula harta
- susut nilai / perlunasan semasa dalam tahun 2023

16.12 Sewa yang dibayar dalam tahun 2023

Pembayaran yang dilakukan bagi kegunaan mana-mana harta yang diambil atas dasar pajakan atau sewaan.

17. WILAYAH

Wilayah terbahagi kepada Semenanjung Malaysia, Sabah dan Sarawak. Bagi Wilayah Semenanjung, ia terdiri dari negeri Johor, Kedah, Kelantan, Melaka, Negeri Sembilan, Pahang, Pulau Pinang, Perak, Perlis, Selangor, Terengganu, Wilayah Persekutuan Kuala Lumpur, Putrajaya dan Labuan.

18. ALAM SEKITAR, SOSIAL DAN TADBIR URUS (ESG)

Tidak hanya merujuk kepada tahun takwim 2023 sahaja. ESG merupakan kriteria yang digunapakai dalam menilai kesan amalan dan pelaksanaan sesebuah syarikat kepada prestasi kewangan dan pengoperasian bagi peningkatan prestasi dan kemampuan industri.

18.1 Alam Sekitar

Merujuk kepada kesan aktiviti / operasi organisasi terhadap organisma hidup dan unsur bukan hidup, termasuk udara, tanah, air dan ekosistem.

18.2 Sosial

Merujuk kepada kesan aktiviti / operasi organisasi terhadap individu dan kumpulan seperti komuniti, golongan rentan atau masyarakat.

18.3 Tadbir Urus

Merujuk kepada struktur tadbir urus, komposisi, pengetahuan, peranan dan imbuhan sesebuah organisasi.

19. PERUSAHAAN MIKRO, KECIL DAN SEDERHANA (PMKS)

Sektor	Mikro	Kecil	Sederhana
Bilangan Pekerja Sepenuh Masa			
Pembuatan	Kurang daripada 5 orang	5 hingga kurang daripada 75 pekerja	75 hingga tidak melebihi 200 pekerja
Perlombongan & Pengkuarian, Pembinaan dan Perkhidmatan	Kurang daripada 5 orang	5 hingga kurang daripada 30 pekerja	30 hingga tidak melebihi 75 pekerja
Nilai Jualan Tahunan			
Pembuatan	Kurang daripada RM300,000	RM300,000 hingga kurang daripada RM15 juta	RM 15 juta hingga tidak melebihi RM50 juta
Perlombongan & Pengkuarian, Pembinaan dan Perkhidmatan	Kurang daripada RM300,000	RM300,000 hingga kurang daripada RM3 juta	RM3 juta hingga tidak melebihi RM20 juta

20. PEMBUNDARAN

Jumlah bagi angka komponen mungkin berbeza dengan jumlah besar disebabkan oleh pembundaran angka.

21. SIMBOL DAN SINGKATAN

-	:	tiada maklumat
&	:	dan
%	:	peratus
cth.	:	contoh
dll.	:	dan lain-lain
n.a	:	tidak tersedia
RM	:	Ringgit Malaysia
t.t.t.l.	:	tidak terkelas di tempat lain
W.P.	:	Wilayah Persekutuan

1. INTRODUCTION

This publication evaluates the performance of the Oil & Gas Services and Equipment (OGSE) industry based on its contribution to Gross Domestic Product (GDP), output value, input, value-added, employment, salaries and wages, ownership structure, legal status, micro, small, and medium enterprises (MSMEs), core OGSE activities, environmental, social, and governance (ESG) data, and other key statistics. Beyond serving as a new benchmark for OGSE statistics in Malaysia, the data presented in this report is used to assess progress on key indicators outlined in the National OGSE Industry Blueprint 2021-2030.

2. SCOPE AND COVERAGE

The OGSE Census encompasses all organizations engaged in oil and gas services and equipment activities in Malaysia. Organizations in the 2024 OGSE Census are classified according to the Malaysia Standard Industrial Classification (MSIC) 2008 Ver. 1.0, aligned with the International Standard Industrial Classification (ISIC) Ver. 4 issued by the United Nations Statistics Division (UNSD). The sectors covered in the 2024 OGSE Census primarily focus on the services sector, civil engineering within the construction industry, engineering services, and support activities for petroleum and natural gas. The coverage of the entire sector includes 265 industries, as outlined in Table 1.

Table 1: Number of industries by sector

Sector	Category of Industries
Services	150
Manufacturing	57
Construction	55
Mining & quarrying	3
Total	265

*The list of MSIC codes involved in the compilation of this publication is provided in **Appendix 1**. This publication is categorized into two segments:*

2.1. Industrial Segment

The Industrial Segment covers the Manufacturing, Construction, and Mining & Quarrying sectors.

2.2. Services Segment

The Services Segment consists solely of the Services Sector.

3. SOURCE OF STATISTICAL FRAME

The primary framework sources for this census are the Malaysia Petroleum Resources Corporation (MPRC) and Petroliaam Nasional Berhad (PETRONAS). Additionally, the framework is also derived from the 2023 Economic Census (reference year 2022) through data collected from Section H (Oil & Gas Services and Equipment).

4. TYPE OF BUSINESS ACTIVITY

Type of business activity refers to both principal and secondary activities. The principal activity refers to the activity to which the establishment devoted most of its resources or activity which derived most of its income. Secondary activities are defined as those incidental or ancillary to the principal activity. The classification of the industry of the establishment is based on the principal activity and is in accordance with the Malaysia Standard Industrial Classification (MSIC) 2008 Ver. 1.0 conforms to the International Standard Industrial Classification of All Economic Activities (ISIC), Rev. 4, United Nations, with modifications to suit local conditions.

5. CONCEPTS AND DEFINITIONS

5.1. Organisations must meet the following criteria to be eligible for the OGSE Census:

i. **Criteria 1**

Registered with the Companies Commission of Malaysia (SSM) or other relevant authorities.

ii. **Criteria 2**

Engaged in core oil and gas activities.

5.2. **Determination of Core OGSE Activities**

A total of 56 core OGSE activities have been identified and provided by MPRC to DOSM for the implementation of the OGSE Census. This list was refined from approximately 1,200 Standardized Work and Equipment Categories (SWEC) Codes. The SWEC Code refers to work categories related to the supply of goods and services to license holders awarded contracts by PETRONAS. The detailed list of core OGSE activities is provided in **Appendix 2**.

5.3. The definitions applied are categorized into four main sectors: Mining & quarrying, Manufacturing, Construction, and Services, in accordance with MSIC 2008 Version 1.0, which is based on the International Standard Industrial Classification of All Economic Activities (ISIC) Revision 4. The definitions are as follows:

5.3.1. **Mining & quarrying**

Mining and quarrying include the extraction of minerals occurring naturally as solids (coal and ores), liquids (petroleum) or gases (natural gas). Extraction can be achieved by different methods such as underground or surface mining, well operation, seabed mining, etc. The Mining and quarrying sector consists of two subsectors, (i) Mineral mining and

quarrying and (ii) Petroleum and natural gas extraction. However, the Mineral mining and quarrying subsector is not covered in this publication.

5.3.2. **Manufacturing**

The physical or chemical transformation of materials or components into new products, whether the work is performed by power-driven machines or by hand, whether it is done in a factory or in the worker's home, and whether the products are sold at wholesale or retail. For the Manufacturing sector, the relevant subsectors included in this publication are Textile, apparel, leather, and footwear products, Wood products, furniture, paper products, Printing, Petroleum, chemical, rubber, and plastic products, Non-metallic mineral products, Basic metals, and metal products, Electrical, electronic, and optical products and Transport equipment, other manufacturing, and repairs.

5.3.3. **Construction**

New construction, alteration, repair and demolition. Installation of any machinery or equipment which built-in at the time of the original construction is included, as well as installation of machinery or equipment after the original construction but which requires structural alteration to install.

5.3.4. **Services**

For the Services sector, the relevant subsectors included in this publication are Water supply, sewerage, waste management and remediation activities, Wholesale & retail trade, Transportation and storage, Information and communication, Food and beverage, Finance, Real estate activities, Professional, Administrative and support services, Education and Health.

6. **CENSUS YEAR AND REFERENCE YEAR**

Census year refers to the year in which a survey was conducted while the reference year of the census was the calendar year 2023. Establishments whose accounting year differed from calendar year were requested to report according to the accounting year or financial year covering at least six (6) months in the reference year.

7. **REPORTING UNIT**

The OGSE Census 2024 uses establishments as the reporting unit.

7.1. The **establishment** is defined as “an economic unit engaged in one activity, under a single legal entity and operating in a single physical / location”. In the case of a multi-activity entity, units engaged in separate activities in the same location constituted distinct establishments.

7.2. An **enterprise** is defined as:

- 7.2.1.** The entire economic activity operating under a single legal entity;
- 7.2.2.** It may consist of more than one organisation;
- 7.2.3.** A single institutional unit engaged in the production of goods and services;
- 7.2.4.** This entity has the ability to own assets, incur liabilities, and engage in economic activities and transactions with other entities;
- 7.2.5.** It may be a corporation, cooperative, association, partnership, sole proprietorship, or may take other forms of association.

7.3. The statistics reported in this publication are based on the location of the establishment, reflecting the condition and performance of the establishment according to the geographical area in which it operates.

8. LEGAL STATUS

The legal status of an establishment has been defined as follows:

8.1. Individual proprietorship

This refers to a business, owned and operated by one person for his own profit. The owner has the exclusive right to control the operation of the establishment.

8.2. Partnership

This refers to a group of individuals who agree to contract and to carry out a business with the objective of profit making. All shareholders or anyone could manage the business for all parties. A trading partnership must comprise of at least two members and should not exceed a maximum of twenty members.

8.3. Limited liabilities partnership

Refers to business entity regulated under the Limited Liability Partnerships Act 2012. It is featured with the protection of limited liability to its partners similar to the limited liability enjoyed by shareholders of a company coupled with flexibility of internal business regulation through partnership arrangement similar to a conventional partnership, and

8.4. Private limited company

A private company established to undertake a business with the objective of making a profit. The shares are closely held by the shareholders of the company who have control over its operation.

Characteristics:

- i. Regulated under the Companies Act 1965 and is a legal entity separate from the owners,
- ii. Number of its shareholders between 2 - 50 members,
- iii. Company owners have limited liability,
- iv. Shareholders who own 51 per cent or more of the total shares shall be entitled to manage the company. The company's shares can be traded but not in the open market,

- v. Trading of share must be with the consent of the other shareholders,
- vi. Not listed on the Stock Exchange, and
- vii. Business life expectancy is longer and can be identified by the words "Sendirian Berhad" (Sdn. Bhd.) at the end of the company name.

8.5. **Public limited company**

A public limited company is a company established with limited liability, by a minimum of two persons to operate the business with the objective of making a profit. The shares in a public limited company are openly held and in the case of company listed on the Bursa Malaysia, the shares are freely transferable.

Characteristics:

- i. Regulated under the Companies Act 1965 and is a legal entity separate from the owner,
- ii. Owned by the shareholders and there is no limit to the shareholder,
- iii. Management of the company is under the board of director responsibilities as appointed by shareholders, and
- iv. Listed on Bursa Malaysia.

8.6. **Co-operative**

This refers to a voluntary association with unrestricted number of members and registered under the Co-operatives Act 1993. Funds are collectively owned to meet the needs of members.

8.7. **Public corporation**

This refers to an undertaking set up under a Special Act Parliament or by the State Legislature.

8.8. **Private non-profit making organisation**

This is non-stock company set up with limited liability. It comprises mainly welfare, religious, educational, health, cultural, recreational and other organisations providing social and community services to households. These services are provided free of charge or at prices, which do not necessarily or fully cover the cost of providing such services (subsidy). Any profit made is reinvested in the organisation.

9. **OWNERSHIP**

The ownership of an establishment is classified by the residential status of the owner (s) of the majority (more than 50%) of the paid-up capital and not by their citizenship status. In instances where each party (Malaysian Resident and Non- Malaysian Resident) held equal shares in the business, the establishments were classified as "Joint Ownership".

- 9.1. A **Malaysian Resident** is any individual, company or other organization ordinarily domiciled in Malaysia for a period of at least one year. Malaysian registered branches and incorporated subsidiaries of foreign based/origins are also regarded as Residents.

9.2. A **Non-Malaysian Resident** is any individual, company or other organization ordinarily domiciled in a country other than Malaysia. Foreign branches and/or subsidiaries abroad owned by Malaysian Residents are also regarded as Non-Residents.

9.3. **Joint ownership** refers to an entity or organization owned by the Federal, State, and Local Governments.

10. VALUE OF GROSS OUTPUT

10.1. The value of gross output of **Mining & quarrying, Manufacturing and Construction** is defined to include the following items:

Sale of mineral/ quarry products/ manufactured products and construction work done

- + *Values of goods sold in the same condition as purchased*
- *Cost of goods sold in the same condition as purchased*
- + *Capital expenditure on own construction*
- + *Income from industrial services rendered to others*
- + *Income from industrial work done*
- + *Receipt from scrap, electricity, waste product, etc. sold to others*
- + *Receipt from commission and brokerage earned*
- + *All other output (such as receipts of non-industrial services, e.g. management fees received, income from rental of property, etc)*
- + *Closing stock of finished goods*
- *Opening stock of finished goods*
- + *Closing stock of goods being processed*
- *Opening stock of goods being processed*
- + *Research and development expenditure (In-house)*

10.2. The value of gross output of **Services** is defined to include the following items:

- + *Value of goods sold in the same condition as purchased*
- + *Management services*
- + *Commission and brokerage earned*
- + *Fees earned from membership*
- + *Rental income received except land rental*
- + *Other operating services*
- + *Service tax and services charges*
- *Value of goods purchased for resale in the same condition*
- + *Closing stocks*
- *Opening stocks*
- + *Research and development expenditure (In-house)*

10.3. The value of **OGSE output** refers to the value of goods and services for OGSE activities carried out by the establishment.

11. VALUE OF INTERMEDIATE INPUT

11.1. The value of intermediate input of **Mining & quarrying, Manufacturing and Construction** is defined to include the following items:

Value of materials and supplies consumed

- + *Cost of industrial work done by others include stripping overburden (earth removal) and internal transport in mines/ quarries site*
- + *Electricity and water purchased*
- + *Value of fuels, lubricants and gas consumed*
- + *Cost of materials used for repairs and maintenance of assets (including payments to others for this work)*
- + *Payments for non-industrial services such as toll, ferry, pilotage, towage and harbor fees and charges (including payments for carriage outwards, travelling, management fees, legal services, information technology, advertising, bank chargers, postage, telecommunication, etc*
- + *All other input costs (including training and value of the free apparel provided for the workers)*

11.2. The value of intermediate input of **Services** is defined to include the following items:

Purchase of goods, materials and services

- + *Insurance premiums*
- + *Royalty and patent fees*
- + *Bank charges*
- + *Purchase of electricity and water*
- + *Purchase of fuels, lubricants and gas*
- + *Research and development expenditure*
- + *Environmental compliance expenditure*
- + *Other operating expenditure*

12. VALUE ADDED

Value added is the increment to the value of commodities and services contributed by the establishment. This value added is derived as the difference between the value of gross output and intermediate input.

13. NUMBER OF PERSONS ENGAGED

Employment covers all persons engaged during December or the last pay period of the reference year. The number of persons engaged was classified under the following categories:

13.1. **Working proprietors and active business partners**

i. **Working proprietors and active business partners**

This category refers to all individual proprietors and partners (full-time or part-time) who are actively engaged in the work of the establishment. It, therefore, excludes silent and inactive partners.

ii. **Unpaid family workers**

Include all household members (full-time or part-time) to the owners of the establishment who perform a specified job and work for a minimum of one third of the normal working time for the establishment, but do not receive regular payment either in cash or in kind for the work done. Such workers generally receive food, shelter and other support as part of the household of an owner, but this would continue whether they worked in the establishment or not.

13.2. **Paid full-time employees**

Refer to all paid workers (full-time) who work for at least six hours a day and/or 20 days a month. All such employees are to be categorized according to Malaysia Standard Classification of Occupations 2020 (MASCO) as follows:

i. **Manager and Professional included:**

a. **Manager**

Refer to those who devise, analyse, formulate, direct and advise on government policy, and make, amend and repeal laws, public rules and regulations, and represent and act on behalf of the government, and oversee the interpretation and implementation of policies and government legislation, or carry out similar tasks on behalf of special interest organisations, or plan, organise, lead, control and coordinate the policies and activities of enterprises, organisations, departments or the internal section, and

b. **Professional**

Refer to those responsible for increase the existing stock of knowledge, apply scientific or artistic concepts and theories, teach about the foregoing in a systematic manner, or engage in any combination of these three activities.

ii. **Technicians and associate professionals**

Refer to those who perform technical and related tasks connected with research and the application of scientific or artistic concepts and operational methods, and government or business regulations.

iii. **Clerical, services & sales workers, craft workers, plant & machine operators and related occupations includes:**

a. Clerical support workers

Refer to those who record, organise, store and retrieve related information and perform clerical duties especially in connection with administrative operations, handling of money, travel arrangements and requests for information and appointments.

b. Service and sales workers

Refer to those who provide personal services related to travel, housekeeping, catering, personal care, or protection against fire and unlawful acts, or demonstrate and sell goods in wholesale or retail shops and similar establishments as well as at stalls and markets.

c. Craft and related trades workers

Refer to those who apply their specific knowledge and skills in the fields of mining and construction, metal forming, and erect metal structures, make, fit, maintain and repair machinery, equipment or tools, carry out printing work as well as produce or process foodstuffs, textiles, or wooden, metal and other articles including handicraft goods; and

d. Plant & machine operators, and assemblers

Refer to those who operate and monitor industrial and agricultural machinery and equipment, drive and operate trains, motor vehicles and mobile machinery and equipment, or assemble product component parts according to strict specifications and procedures.

e. Elementary occupations

Refer to those who perform simple, routine and non-systematic tasks which mainly require the use of handheld tools or with the assistance of simple machines, and in some cases considerable physical effort.

13.3. Paid part-time employees

Refer to all paid workers (part-time) who work less than six hours a day and/or 20 days a month.

14. CATEGORY OF SKILLS

Category of skills have been classified according to Malaysia Standard Classification of Occupation (MASCO) 2020 as follows:

14.1. Skilled

Managers, Professionals and Technicians and associate professionals;

14.2. Semi-skilled

Clerical support, Service & sales workers, Craft & related trades workers, and Plant & machine operators and assemblers; and

14.3. Low-skilled

Elementary occupations

15. SALARIES & WAGES

All payments (salaries, wages, bonuses, commissions, overtime pay and cash allowances including cost of living, housing, car, food, etc.) made throughout the reference year to all paid employees in each category. For all directly employed workers, total payments made before deductions for income tax and employees' contributions to Employees' Provident Fund (EPF)/ Social Security Organisation (SOCSO)/ Other provident/ Retirement Funds Incorporated (KWAP). The Employer's contribution to such funds as mentioned above should be excluded.

16. VALUE OF FIXED ASSETS

Value of fixed assets is the value of acquisition or used of such entities in a period of time. The value of fixed assets can be distinguished from non-financial assets and financial assets. For non-financial assets, it distinguished between production and non-production assets. Production assets consist of structure, machinery & equipment and other assets. The types of assets are defined as follows:

16.1. Buildings and other construction:

- i. **Residential** consists entirely or primarily of dwellings.*
- ii. **Non-residential buildings** for industrial, commercial or public use; e.g. factories, warehouses, office buildings, stores, restaurants, garage, shops, hospitals, school, etc.*
- iii. **Other construction work** includes building or renovation of roads, railroads, sewers, bridges, harbours, car parks, pipelines, etc.*
- iv. **Land** includes the value of sites without considering on land improvements and structures. (e.g. reclaimed land and coastal land reclaimed to create a land).*

16.2. Machinery and equipment:

*i. **Main machinery and equipment***

Includes power generating machinery, office machinery and equipment, metal working machinery, construction and other industrial machinery, cranes, fork-lift equipment etc., durable containers, equipment and instruments used by professionals and any other machinery and equipment including major repair and improvement to these types of machinery and equipment.

ii. **Drone**

A drone or unmanned aircraft system (UAS) means an aircraft and its associated elements which are operated with no pilot on board.

iii. **Transport equipment**

Refers to equipment used for the conveyance of goods and / or persons for business purpose

iv. **Information and communications technology**

a. **Computer hardware**

Refers to all computer hardware used for processing, storing and transmitting data and information related to computer system.

b. **Computer software**

Refers to software used in operating the computer programme and database whether it is self-produced, custom-made as well as ready-made (non-customised).

c. **Telecommunications equipment**

Refers to mobile phones, personal digital assistants (PDAs), satellite dishes, audio visual equipment (e.g. radio, television) and other television / radio transmitters and receivers.

v. **Furniture and fittings**

Covers all items required to furnish and equip a building, e.g.: chairs, tables, carpeting etc.

vi. **Land improvement**

Includes all value of work done on clearing, preparing construction sites and landscaping but excludes the value of land before improvement. It also includes outlays on land reclamation and land clearance irrespective of whether it represents an addition to total land availability or not. For example, irrigation and flood control projects, dams and dykes which are part of these projects, clearance and forestation to timber tracts and forests.

16.3. Other assets refer to asset not classified under buildings intangible assets that includes patent and goodwill.

i. **Patent** refers to exclusive right to manufacture a mechanical invention which runs for numbers of years. Patent is valued at cost.

ii. **Goodwill** arises from the good reputation of a company and the customer's loyalty it has gained. When a business is purchased for a price in excess of the value of its net assets, then the excess presumably is for goodwill.

*iii. **Work in progress refers** to assets (e.g. building, machinery & equipment etc.) partially completed and has yet to be capitalised. For example, if a company is constructing an asset such as building to be used in production, and the asset is only partially completed, the amount spent would be recorded as work in progress.*

16.4. Net book value as at beginning of the financial year

Net book value as at the beginning of the financial year, net of depreciation in the year before.

16.5. New include imported (new & used)

Cover acquisitions of new assets including imports of used assets since they represent newly acquired assets for the Malaysian economy. This refers to fixed assets that is not used in Malaysia, including imported fixed assets, whether new or used.

16.6. Used assets (Malaysia)

Used assets (Malaysia) refer to all assets previously used in Malaysia including those reconditioned or modified before acquisition.

16.7. Built / self-produced

Built / self-produced for assets produced by the establishment for its own use, the costs of all works done during the year should be recorded. Any overhead costs allocated to this work should be included.

Capital transaction should generally be recorded when ownership is acquired. Normally it should coincide with the time at which the assets are in its completed form and delivered to the control of the establishment. This is the basis for recording expenditure of all fixed assets except construction work. In the case of construction, the value of construction work done is the value of work carried out on projects completed during the reference year, plus the value of work under construction at the end of the reference year minus the value of work at the beginning of the reference year.

16.8. Assets sold or disposed / discarded during 2023

The value of fixed assets sold / disposed / discarded during the year regardless of their condition is to be reported according to the actual amount

16.9. Gain (+) / loss (-) from sales / revaluation of assets

Gain / loss from sales / revaluation of assets refer to when an asset is sold above / below the net book value, a gain / loss from the sale of asset is realised and should be reported. Similarly, an asset can be revalued to reflect the current market value. A gain / loss from revaluation of the asset is realised and should also be reported. If it is a loss, the figure should be written beginning with symbol (-).

16.10. Current depreciation / amortisation during 2023

Current depreciation / amortisation represents loss or diminution of value of an asset consequent upon wear and tear, obsolescence or permanent fall in market value (depreciation allowed for a tax purpose is acceptable). The value reported in the establishment's books of accounts for each class of fixed assets should be reported. This includes amortisation of leasehold land.

16.11. Net book value as at end of the financial year

- + the net value as at beginning of the financial year
- + new include imported (new & used)
- + used assets (Malaysia)
- + built / self-produced
- assets sold / disposed / discarded
- +/- gain / loss from sales / revaluation of assets
- current depreciation / amortisation during 2023

16.12. Rent paid during 2023

The amount paid for the use of any assets taken on lease or rent.

17. REGION

The regions are divided into Peninsular Malaysia, Sabah, and Sarawak. For the Peninsular region, it consists of the states of Johor, Kedah, Kelantan, Melaka, Negeri Sembilan, Pahang, Pulau Pinang, Perak, Perlis, Selangor, and Terengganu, as well as the Federal Territories of Kuala Lumpur, Putrajaya, and Labuan.

18. ENVIRONMENTAL, SOCIAL AND GOVERNANCE (ESG)

Doesn't only refer to the calendar year of 2023. ESG refers to the criteria used to assess the impact of a company's practices and operations on its financial performance and operations, with the aim of enhancing the performance and sustainability of the industry.

18.1. Environmental

Refers to the impact of organization's activities / operations on living organisms and non-living elements, including air, soil, water, and ecosystems.

18.2. Social

Refers to the impact of organization's activities / operations on individuals and groups such as communities, vulnerable groups, or society.

18.3. Governance

Refers to organizational governance structure, composition, knowledge, roles, and incentives.

19. MICRO, SMALL AND MEDIUM ENTERPRISES (MSMEs)

Sector	Micro	Small	Medium
Number of Full-Time Employees			
Manufacturing	Less than 5 employees	From 5 to less than 75 employees	From 75 to not exceeding 200 employees
Mining & quarrying, Construction and Services	Less than 5 employees	From 5 to less than 30 employees	From 30 to not exceeding 75 employees
Annual Sales Turnover			
Manufacturing	Less than RM300,000	From RM300,000 to less than RM15 million	From RM 15 million to not exceeding RM50 million
Mining & quarrying, Construction and Services	Less than RM300,000	From RM300,000 to less than RM3 million	From RM3 million to not exceeding RM20 million

20. ROUNDING

The sum of the component figures may not tally with the sub-total or total figures due to rounding.

21. SYMBOLS AND ABBREVIATIONS

-	:	no information
&	:	and
%	:	per cent
e.g.	:	exempli gratia
etc.	:	et cetera
n.a	:	not available
n.e.c.	:	not elsewhere classified
RM	:	Ringgit Malaysia
W.P.	:	Federal Territory

Lampiran 1: Senarai MSIC Appendix 1: List of MSIC

A. Segmen Perindustrian / Industrial Segment

BIL.	SEKTOR SECTOR	SUBSEKTOR SUBSECTOR	MSIC	KETERANGAN MSIC MSIC DESCRIPTION
1	Perlombongan dan pengkuarian <i>Mining and quarrying</i>	Petroleum dan gas asli <i>Petroleum and natural gas</i>	06101	Pengekstrakan minyak petroleum mentah <i>Extraction of crude petroleum oils</i>
2			09101	Aktiviti pengekstrakan petroleum dan gas yang dibekalkan atas dasar kontrak atau yuran <i>Oil and gas extraction service activities provided on a fee or contract basis</i>
3			09102	Perkhidmatan memadam kebakaran di lapangan minyak dan gas <i>Oil and gas field fire fighting services</i>
4	Pembuatan <i>Manufacturing</i>	Produk tekstil, pakaian, kulit dan kasut <i>Textiles, wearing apparel, leather and footwear products</i>	13940	Pembuatan bagi tali-temali, tali, tali pintal dan jaring <i>Manufacture of cordage, rope, twine and netting</i>
5			14101	Pembuatan pakaian spesifik <i>Manufacture of specific wearing apparel</i>
6			14102	Pembuatan pakaian <i>Manufacture of clothings</i>
7			15201	Pembuatan kasut kulit <i>Manufacture of leather footwear</i>

BIL.	SEKTOR SECTOR	SUBSEKTOR SUBSECTOR	MSIC	KETERANGAN MSIC MSIC DESCRIPTION
8	Pembuatan Manufacturing	Produk kayu, perabot, keluaran kertas dan percetakan <i>Wood products, furniture, paper products and printing</i>	17010	Pembuatan pulpa, kertas dan kertas tebal <i>Manufacture of pulp, paper and paperboard</i>
9			18110	Percetakan <i>Printing</i>
10		Produk petroleum, kimia, getah dan plastik <i>Petroleum, chemical, rubber and plastic products</i>	19201	Pembuatan produk petroleum bertapis <i>Manufacture of refined petroleum products</i>
11			20112	Pembuatan kimia organik asas <i>Manufacture of basic organic chemicals</i>
12			20119	Pembuatan kimia asas lain t.t.t.l <i>Manufacture of other basic chemicals n.e.c.</i>
13			20131	Pembuatan getah sintetik dalam bentuk primer: getah sintetik, tiruan <i>Manufacture of plastic in primary forms</i>
14			20221	Pembuatan cat, varnis dan penyadur dan mastik <i>Manufacture of paints, varnishes and similar coatings ink and mastics</i>
15			20231	Pembuatan sabun dan bahan pencuci, penyediaan membersih dan mengilat <i>Manufacture of soap and detergents, cleaning and polishing preparations</i>

BIL.	SEKTOR SECTOR	SUBSEKTOR SUBSECTOR	MSIC	KETERANGAN MSIC MSIC DESCRIPTION
16	Pembuatan Manufacturing	Produk petroleum, kimia, getah dan plastik <i>Petroleum, chemical, rubber and plastic products</i>	20299	Pembuatan produk kimia lain t.t.t.l <i>Manufacture of other chemical products n.e.c.</i>
17			21009	Pembuatan produk farmaseutikal, kimia perubatan dan botani t.t.t.l <i>Manufacture of other pharmaceuticals, medicinal chemical and botanical products n.e.c.</i>
18			22202	Pembuatan produk plastik siap <i>Manufacture of finished plastic products</i>
19			22203	Pembuatan artikel plastik untuk pembungkusan barangan <i>Manufacture of plastic articles for the packing of goods</i>
20			22209	Pembuatan pelbagai produk plastik t.t.t.l <i>Manufacture of diverse plastic products n.e.c.</i>
21		Produk mineral bukan logam, logam asas dan produk logam <i>Non-metallic mineral products, basic metal and fabricated metal products</i>	23953	Pembuatan komponen struktur pasang siap untuk bangunan atau kejuruteraan awam dari simen, batu atau konkrit buatan <i>Manufacture of prefabricated structural components for building or civil engineering of cement, concrete or artificial stone</i>
22			23990	Pembuatan produk mineral bukan logam lain t.t.t.l. <i>Manufacture of other non-metallic mineral products n.e.c.</i>

BIL.	SEKTOR SECTOR	SUBSEKTOR SUBSECTOR	MSIC	KETERANGAN MSIC MSIC DESCRIPTION
23	Pembuatan Manufacturing	Produk mineral bukan logam, logam asas dan produk logam <i>Non-metallic mineral products, basic metal and fabricated metal products</i>	24101	Pengeluaran jongkong besi dan spiegeleisen dalam bentuk jongkong, blok atau dalam bentuk asal lain <i>Production of pig iron and spiegeleisen in pigs, blocks or other primary forms</i>
24			24102	Pembuatan batang dan rod keluli tahan karat atau keluli aloi lain <i>Production of bars and rods of stainless steel or other alloy steel</i>
25			24103	Pembuatan tiub tidak berkelim, dengan pengelekan, picitan atau tempaan panas, atau dengan tempaan atau pengelekan sejuk <i>Manufacture of seamless tubes, by hot rolling, hot extrusion or hot drawing, or by cold drawing or cold rolling</i>
26			24109	Pembuatan produk besi asas dan keluli lain t.t.t.l <i>Manufacture of other basic iron and steel products n.e.c.</i>
27			24311	Pengacuan besi <i>Casting of iron</i>
28			25112	Pembuatan bangunan pasang siap terutamanya daripada logam <i>Manufacture of prefabricated buildings mainly of metal</i>
29			25119	Pembuatan produk struktur logam lain <i>Manufacture of other structural metal products</i>

BIL.	SEKTOR SECTOR	SUBSEKTOR SUBSECTOR	MSIC	KETERANGAN MSIC MSIC DESCRIPTION
30	Pembuatan Manufacturing	Produk mineral bukan logam, logam asas dan produk logam <i>Non-metallic mineral products, basic metal and fabricated metal products</i>	25120	Pembuatan tangki, takungan dan kontena daripada logam <i>Manufacture of tanks, reservoirs and containers of metal</i>
31			25920	Rawatan dan penyalutan logam; menggunakan mesin <i>Treatment and coating of metals; machining</i>
32			25992	Pembuatan kabel, plaited bands (jalur/pita berpintal) dan artikel seumpamanya daripada logam <i>Manufacture of metal cable, plaited bands and similar articles</i>
33			25993	Pembuatan bolt, skru, nat dan produk uliran seumpamanya <i>Manufacture of bolts, screws, nuts and similar threaded products</i>
34			25999	Pembuatan produk lain yang direka daripada logam t.t.t.l <i>Manufacture of any other fabricated metal products n.e.c.</i>
35		Produk elektrik, elektronik dan optikal <i>Electrical, electronic and optical products</i>	26511	Pembuatan kelengkapan mengukur, menguji, memandu arah dan kawalan <i>Manufacture of measuring, testing, navigating and control equipment</i>
36			26512	Pembuatan kelengkapan kawalan proses perindustrian <i>Manufacture of industrial process control equipment manufacturing</i>

BIL.	SEKTOR SECTOR	SUBSEKTOR SUBSECTOR	MSIC	KETERANGAN MSIC MSIC DESCRIPTION
37	Pembuatan Manufacturing	Produk elektrik, elektronik dan optikal <i>Electrical, electronic and optical products</i>	27102	Pembuatan perkakasan pengagihan dan pengawalan elektrik <i>Manufacture of electricity distribution and control apparatus</i>
38			27320	Pembuatan wayar dan kabel elektronik dan elektrik lain <i>Manufacture of other electronic and electric wires and cables</i>
39			27400	Pembuatan kelengkapan pencahayaan elektrik <i>Manufacture of electric lighting equipment</i>
40			27900	Pembuatan pelbagai kelengkapan elektrik selain daripada motor, penjana dan transformer, bateri dan akumulator, wayar dan alatan pendawaian, kelengkapan pencahayaan atau perkakasan domestik <i>Manufacture of miscellaneous electrical equipment other than motors, generators and transformers, batteries and accumulators, wires and wiring devices, lighting equipment or domestic appliances</i>
41		Peralatan pengangkutan, pembuatan lain dan pembaikan <i>Transport equipment, other manufacturing and repair</i>	28130	Pembuatan pam, pemampat, kepala paip dan injap lain <i>Manufacture of other pumps, compressors, taps and valves</i>

BIL.	SEKTOR SECTOR	SUBSEKTOR SUBSECTOR	MSIC	KETERANGAN MSIC MSIC DESCRIPTION
42	Pembuatan Manufacturing	Peralatan pengangkutan, pembuatan lain dan pembaikan <i>Transport equipment, other manufacturing and repair</i>	28150	Pembuatan ketuhar, relau dan relau pembakar <i>Manufacture of ovens, furnaces and furnace burners</i>
43			28160	Pembuatan kelengkapan mengangkat dan mengendali <i>Manufacture of lifting and handling equipment</i>
44			28199	Pengeluaran mesin tujuan umum lain t.t.t.l <i>Manufacture of other general-purpose machinery n.e.c.</i>
45			28220	Pembuatan jentera pembentukan logam dan alatan mesin <i>Manufacture of metal-forming machinery and machine tools</i>
46			28240	Pembuatan mesin untuk perlombongan, pengkuarian dan pembinaan <i>Manufacture of machinery for mining, quarrying and construction</i>
47			28290	Pembuatan lain-lain mesin bertujuan khas t.t.t.l. <i>Manufacture of other special-purpose machinery n.e.c.</i>
48			29200	Pembuatan kerangka (coachwork) untuk kenderaan bermotor; pembuatan treler dan semi treler <i>Manufacture of bodies (coachwork) for motor vehicles; manufacture of trailers and semi-trailers</i>

BIL.	SEKTOR SECTOR	SUBSEKTOR SUBSECTOR	MSIC	KETERANGAN MSIC MSIC DESCRIPTION
49	Pembuatan Manufacturing	Peralatan pengangkutan, pembuatan lain dan pembaikan <i>Transport equipment, other manufacturing and repair</i>	29300	Pembuatan alat ganti dan aksesori untuk kenderaan bermotor <i>Manufacture of parts and accessories for motor vehicles</i>
50			30110	Pembinaan kapal dan struktur terapung <i>Building of ships and floating structures</i>
51			30990	Pembuatan kelengkapan pengangkutan lain t.t.t.l. <i>Manufacture of other transport equipments n.e.c..</i>
52			31001	Pembuatan perabot kayu dan rotan <i>Manufacture of wooden and cane furniture</i>
53			32909	Pembuatan lain t.t.t.l <i>Other manufacturing n.e.c.</i>
54			33110	Pembaikan produk logam yang direka <i>Repair of fabricated metal products</i>
55			33120	Pembaikan dan penyelenggaraan jentera dan kelengkapan industri <i>Repair and maintenance of industrial machinery and equipment</i>
56			33131	Pembaikan dan penyelenggaraan peralatan menyukat, menguji, memandu arah dan kelengkapan kawalan <i>Repair and maintenance of the measuring, testing, navigating and control equipment</i>

BIL.	SEKTOR SECTOR	SUBSEKTOR SUBSECTOR	MSIC	KETERANGAN MSIC MSIC DESCRIPTION
57	Pembuatan Manufacturing	Peralatan pengangkutan, pembuatan lain dan pembaikan <i>Transport equipment, other manufacturing and repair</i>	33140	Pembaikan dan penyelenggaraan peralatan elektrik kecuali penggunaan domestik <i>Repair and maintenance of electrical equipment except domestic appliances</i>
58			33150	Pembaikan dan penyelenggaraan kelengkapan pengangkutan kecuali motosikal dan basikal-basikal <i>Repair and maintenance of transport equipment except motorcycles and bicycles</i>
59			33190	Pembaikan dan penyelenggaraan peralatan lain t.t.t.l. <i>Repair and maintenance of other equipment n.e.c.</i>
60			33200	Pemasangan bagi perindustrian mesin dan kelengkapan <i>Installation of industrial machinery and equipment</i>
61	Pembinaan Construction	Bangunan kediaman <i>Residential building</i>	41001	Bangunan kediaman <i>Residential buildings</i>
62		Bangunan bukan kediaman <i>Non-residential building</i>	41002	Bangunan bukan kediaman <i>Non-residential buildings</i>
63			41009	Pembinaan bangunan t.t.t.l. <i>Construction of buildings n.e.c.</i>
64		Kejuruteraan awam <i>Civil engineering</i>	42101	Pembinaan laluan kenderaan bermotor, lorong, jalan, laluan pejalan kaki dan kenderaan lain <i>Construction of motorways, streets, roads, other vehicular and pedestrian ways</i>

BIL.	SEKTOR SECTOR	SUBSEKTOR SUBSECTOR	MSIC	KETERANGAN MSIC MSIC DESCRIPTION
65	Pembinaan Construction	Kejuruteraan awam Civil engineering	42102	Kerja penurapan jalan, jalan raya, lebuhraya, jambatan atau terowong <i>Surface work on streets, roads, highways, bridges or tunnels</i>
66			42103	Pembinaan jambatan termasuk untuk lebuhraya bertingkat <i>Construction of bridges, including those for elevated highways</i>
67			42109	Pembinaan jalan raya dan landasan kereta api t.t.t.l <i>Construction of roads and railways n.e.c.</i>
68			42201	Saluran paip jarak jauh, talian komunikasi dan kuasa <i>Long-distance pipelines, communication and power lines</i>
69			42202	Saluran paip dalam bandar, talian komunikasi dan kuasa dalam bandar; kerja-kerja berkaitan dalam bandar <i>Urban pipelines, urban communication and power lines; ancillary urban works</i>
70			42203	Pembinaan punca dan saluran air <i>Water main and line construction</i>
71			42204	Loji takungan <i>Reservoirs</i>
72			42205	Pembinaan sistem pengairan (terusan) <i>Construction of irrigation systems (canals)</i>

BIL.	SEKTOR SECTOR	SUBSEKTOR SUBSECTOR	MSIC	KETERANGAN MSIC MSIC DESCRIPTION
73	Pembinaan Construction	Kejuruteraan awam Civil engineering	42206	Pembinaan sistem pembetungan (termasuk pembaikan) dan loji pelupusan sisa kumbahan <i>Construction of sewer systems (including repair) and sewage disposal plants</i>
74			42207	Pembinaan janakuasa <i>Construction of power plants</i>
75			42209	Pembinaan projek utiliti t.t.t.l. <i>Construction of utility projects n.e.c.</i>
76			42901	Pembinaan loji penapisan <i>Construction of refineries</i>
77			42902	Pembinaan laluan air, kerja pelabuhan dan sungai, pleasure ports (marinas), kunci air <i>Construction of waterways, harbour and river works, pleasure ports (marinas), locks</i>
78			42903	Pembinaan empangan dan daik <i>Construction of dams and dykes</i>
79			42905	Kemudahan sukan luar dewan <i>Outdoor sports facilities</i>
80			42906	Pembahagian tanah berserta dengan penambahbaikan tanah <i>Land subdivision with land improvement</i>
81			42909	Pembinaan projek kejuruteraan awam lain t.t.t.l. <i>Construction of other engineering projects n.e.c.</i>
82		Aktiviti pertukangan khas <i>Special trades activities</i>	43110	Perobohan atau peranapan bangunan dan struktur lain <i>Demolition or wrecking of buildings and other structures</i>

BIL.	SEKTOR SECTOR	SUBSEKTOR SUBSECTOR	MSIC	KETERANGAN MSIC MSIC DESCRIPTION
83	Pembinaan Construction	Aktiviti pertukangan khas Special trades activities	43122	Pengalihan tanah <i>Earth moving</i>
84			43123	Pengujian tanah, pengerudian dan penggalian tanah untuk tujuan pembinaan, geofizikal, geologikal atau tujuan seumpamanya <i>Drilling, boring and core sampling for construction, geophysical, geological or similar purposes</i>
85			43211	Pendawaian dan pemasangan elektrik <i>Electrical wiring and fittings</i>
86			43212	Pendawaian telekomunikasi <i>Telecommunications wiring</i>
87			43213	Pendawaian rangkaian komputer dan kabel televisyen <i>Computer network and cable television wiring</i>
88			43215	Sistem pencahayaan <i>Lighting systems</i>
89			43216	Sistem keselamatan <i>Security systems</i>
90			43219	Pemasangan elektrik t.t.t.l. <i>Electrical installation n.e.c.</i>
91			43221	Pemasangan sistem pemanasan (elektrik, gas dan minyak) <i>Installation of heating systems (electric, gas and oil)</i>
92			43222	Pemasangan relau, menara pendinginan <i>Installation of furnaces, cooling towers</i>
93			43223	Pemasangan pengumpul tenaga solar bukan elektrik <i>Installation of non-electric solar energy collectors</i>

BIL.	SEKTOR SECTOR	SUBSEKTOR SUBSECTOR	MSIC	KETERANGAN MSIC MSIC DESCRIPTION
94	Pembinaan Construction	Aktiviti pertukangan khas Special trades activities	43224	Pemasangan sistem paip dan peralatan sanitasi <i>Installation of plumbing and sanitary equipment</i>
95			43225	Pemasangan peralatan dan saluran pengudaraan, penyejukan atau pendinginan udara <i>Installation of ventilation, refrigeration or air-conditioning equipment and ducts</i>
96			43226	Pemasangan kelengkapan gas <i>Installation of gas fittings</i>
97			43227	Pemasangan sistem perenjis air untuk kebakaran dan padang <i>Installation of fire and lawn sprinkler systems</i>
98			43228	Pemasangan paip untuk wap <i>Steam piping</i>
99			43229	Pemasangan sistem paip, pemanasan dan pendinginan udara t.t.t.l. <i>Plumbing, heat and air-conditioning installation n.e.c.</i>
100			43291	Pemasangan lif, eskalator dalam bangunan atau projek pembinaan lain <i>Installation of elevators, escalators in buildings or other construction projects</i>
101			43293	Pemasangan konduktor kilat dalam bangunan atau projek pembinaan lain <i>Installation of lighting conductors in buildings or other construction projects</i>
102			43295	Pemasangan sistem penempatan haba, bunyi atau gegaran dalam bangunan atau projek pembinaan lain <i>Installation thermal, sound or vibration insulation in buildings or other construction projects</i>

BIL.	SEKTOR SECTOR	SUBSEKTOR SUBSECTOR	MSIC	KETERANGAN MSIC MSIC DESCRIPTION
103			43299	Pemasangan pembinaan lain t.t.t.l. <i>Other construction installation n.e.c.</i>
104			43302	Melapis, memasang jubin, menggantung atau memasang kelengkapan bangunan atau projek pembinaan lain daripada pelbagai bahan <i>Laying, tiling, hanging or fitting in buildings or other construction projects of various types of materials</i>
105			43303	Mengecat dalam dan luar bangunan <i>Interior and exterior painting of buildings</i>
106			43304	Mengecat struktur kejuruteraan awam <i>Painting of civil engineering structures</i>
107			43306	Penyiapan dalaman bangunan <i>Interior completion</i>
108	Pembinaan Construction	Aktiviti pertukangan khas Special trades activities	43307	Pembersihan bangunan baru selepas kerja pembinaan <i>Cleaning of new buildings after construction</i>
109			43309	Penyiapan dan kemasan bangunan lain t.t.t.l. <i>Other building completion and finishing work n.e.c.</i>
110			43901	Pembinaan tapak, termasuk memantak cerucuk <i>Construction of foundations, including pile driving</i>
111			43903	Memasang dan membuka semula perancah dan platform kerja <i>Scaffolds and work platform erecting and dismantling</i>
112			43905	Pembinaan kolam renang luar bangunan <i>Construction of outdoor swimming pools</i>

BIL.	SEKTOR SECTOR	SUBSEKTOR SUBSECTOR	MSIC	KETERANGAN MSIC MSIC DESCRIPTION
113		Aktiviti pertukangan khas <i>Special trades activities</i>	43906	Pembersihan menggunakan stim, pancutan air deras berpasir dan aktiviti seumpamanya untuk luar bangunan <i>Steam cleaning, sand blasting and similar activities for building exteriors</i>
114			43907	Penyewaan jentera dan peralatan pembinaan dengan operator (cth. kren) <i>Renting of construction machinery and equipment with operator (e.g. cranes)</i>
115			43909	Aktiviti pembinaan pertukangan khas lain t.t.t.l <i>Other specialized construction activities, n.e.c.</i>

B. Segmen Perkhidmatan / Services Segment

BIL.	SUBSEKTOR SUBSECTOR	MSIC	KETERANGAN MSIC MSIC DESCRIPTION
116	Bekalan air, pembentungan, pengurusan sisa dan aktiviti pemulihan <i>Water supply; sewerage, waste management and remediation activities</i>	37000	Pembetulan dan aktiviti-aktiviti yang seumpamanya <i>Sewerage and similar activities</i>
117		38111	Pengumpulan sisa pepejal yang tidak berbahaya (cth. sampah) di kawasan setempat <i>Collection of non-hazardous solid waste (i.e. garbage) within a local area</i>
118		38121	Pengumpulan sisa berbahaya <i>Collection of hazardous waste</i>
119		38210	Rawatan dan pelupusan sisa tidak berbahaya <i>Treatment and disposal of non-hazardous waste</i>
120		38220	Rawatan dan pelupusan sisa berbahaya <i>Treatment and disposal of hazardous</i>
121		39000	Aktiviti pemulihan dan lain-lain perkhidmatan pengurusan sisa <i>Remediation activities and other waste management services</i>
122	Perdagangan borong & runcit <i>Wholesale & retail trade</i>	45201	Penyelenggaraan dan pembaikan kenderaan bermotor <i>Maintenance and repair of motor vehicles</i>

BIL.	SUBSEKTOR <i>SUBSECTOR</i>	MSIC	KETERANGAN MSIC <i>MSIC DESCRIPTION</i>
123	Perdagangan borong & runcit <i>Wholesale & retail trade</i>	45300	Jualan borong dan runcit semua jenis komponen, alat ganti, bekalan, peralatan dan aksesori kenderaan bermotor <i>Wholesale and retail sale of all kinds of parts, components, supplies, tools and accessories for motor vehicles</i>
124		45401	Jualan borong dan runcit motosikal <i>Wholesale and retail sale of motorcycles</i>
125		46100	Jualan borong berdasarkan kontrak atau yuran <i>Wholesale on a fee or contract basis</i>
126		46311	Jualan borong daging, unggas dan telur <i>Wholesale of meat, poultry and eggs</i>
127		46329	Jualan borong barang makanan lain <i>Wholesale of other foodstuffs</i>
128		46419	Jualan borong tekstil, pakaian t.t.t.l. <i>Wholesale of textiles, clothing n.e.c.</i>
129		46421	Jualan borong barangan farmaseutikal dan perubatan <i>Wholesale of pharmaceutical and medical goods</i>
130		46491	Jualan borong perabot isi rumah <i>Wholesale of household furniture</i>
131		46494	Jualan borong perkakas dapur dan kutleri, pinggan mangkuk, barangan kaca dan barangan tembikar <i>Wholesale of household utensils and cutlery, crockery, glassware, chinaware and pottery</i>
132		46496	Jualan borong barangan elektrik dan elektronik <i>Wholesale of electrical and electronics goods</i>
133		46499	Jualan borong lain-lain barangan isi rumah t.t.t.l. <i>Wholesale of other household goods n.e.c.</i>

BIL.	SUBSEKTOR <i>SUBSECTOR</i>	MSIC	KETERANGAN MSIC <i>MSIC DESCRIPTION</i>
134	Perdagangan borong & runcit <i>Wholesale & retail trade</i>	46510	Jualan borong perkakasan komputer, perisian dan peranti <i>Wholesale of computer hardware, software and peripherals</i>
135		46521	Jualan borong kelengkapan telefon dan telekomunikasi, telefon selular, alat kelui <i>Wholesale of telephone and telecommunications equipment, cell phones, pagers</i>
136		46522	Jualan borong komponen elektronik dan aksesori pendawaian <i>Wholesale of electrical and electronic component and wiring accessories</i>
137		46531	Jualan borong jentera, kelengkapan dan bekalan pertanian <i>Wholesale of agricultural machinery, equipment and supplies</i>
138		46591	Jualan borong mesin pejabat dan kelengkapan perniagaan, kecuali komputer dan kelengkapan peranti komputer (peripheral) <i>Wholesale of office machinery and business equipment, except computers and computer peripheral equipment</i>
139		46593	Jualan borong peralatan mesin berkawalan komputer <i>Wholesale of computer-controlled machines tools</i>
140		46594	Jualan borong jentera, kelengkapan dan bekalan perindustrian <i>Wholesale of industrial machinery, equipment and supplies</i>
141		46595	Jualan borong jentera dan kelengkapan pembinaan dan kejuruteraan awam <i>Wholesale of construction and civil engineering machinery and equipment</i>

BIL.	SUBSEKTOR <i>SUBSECTOR</i>	MSIC	KETERANGAN MSIC <i>MSIC DESCRIPTION</i>
142	Perdagangan borong & runcit <i>Wholesale & retail trade</i>	46596	Jualan borong lif, eskalator, penghawa dingin, kelengkapan keselamatan dan pemadam api <i>Wholesale of lift escalators, air-conditioning, security and fire fighting equipment</i>
143		46599	Jualan borong lain-lain jentera untuk kegunaan industri, perdagangan dan pengemudian dan lain-lain perkhidmatan t.t.t.l. <i>Wholesale of other machinery for use in industry, trade and navigation and other services n.e.c.</i>
144		46611	Jualan borong petrol, diesel, pelincir <i>Wholesale of petrol, diesel, lubricants</i>
145		46612	Jualan borong gas petroleum cecair <i>Wholesale of liquefied petroleum gas</i>
146		46619	Jualan borong bahan api pepejal, cecair dan gas dan produk berkaitan t.t.t.l. <i>Wholesale of other solid, liquid and gaseous fuels and related products n.e.c.</i>
147		46621	Jualan borong bijih besi dan bukan besi dan logam <i>Wholesale of ferrous and non-ferrous metal ores and metals</i>
148		46622	Jualan borong bijih besi dan bukan besi dan logam separuh siap dan produk t.t.t.l. <i>Wholesale of ferrous and non-ferrous semi-finished metal ores and products n.e.c.</i>
149		46631	Jualan borong kayu balak, kayu bergergaji, papan lapis, venier dan produk berkaitan <i>Wholesale of logs, sawn timber, plywood, veneer and related products</i>
150		46632	Jualan borong cat dan varnis <i>Wholesale of paints and varnish</i>

BIL.	SUBSEKTOR <i>SUBSECTOR</i>	MSIC	KETERANGAN MSIC <i>MSIC DESCRIPTION</i>
151	Perdagangan borong & runcit <i>Wholesale & retail trade</i>	46633	Jualan borong bahan pembinaan <i>Wholesale of construction materials</i>
152		46637	Jualan borong alatan <i>Wholesale of tools</i>
153		46639	Jualan borong dan bekalan lain-lain bahan binaan, hardwer, peralatan paip dan alat pemanas t.t.t.l. <i>Wholesale of other construction materials, hardware, plumbing and heating equipment and supplies n.e.c.</i>
154		46691	Jualan borong bahan kimia industri <i>Wholesale of industrial chemicals</i>
155		46692	Jualan borong baja dan produk agrokimia <i>Wholesale of fertilizers and agrochemical products</i>
156		46693	Jualan borong bahan plastik dalam bentuk asal <i>Wholesale of plastic materials in primary forms</i>
157		46694	Jualan borong sekerap getah <i>Wholesale of rubber scrap</i>
158		46696	Jual borong kertas secara pukal, bahan pembungkusan <i>Wholesale of paper in bulk, packaging materials</i>
159		46698	Jual borong bahan buangan dan sekerap dan bahan lain sama ada logam dan bukan logam untuk kitar semula <i>Wholesale of metal and non-metal waste and scrap and materials for recycling</i>
160		46909	Jualan borong pelbagai jenis barang tanpa pengkhususan tertentu t.t.t.l. <i>Wholesale of a variety of goods without any particular specialization n.e.c.</i>

BIL.	SUBSEKTOR <i>SUBSECTOR</i>	MSIC	KETERANGAN MSIC <i>MSIC DESCRIPTION</i>
161	Perdagangan borong & runcit <i>Wholesale & retail trade</i>	47199	Jualan runcit lain di kedai tanpa pengkhususan t.t.t.l. <i>Other retail sale in non-specialized stores n.e.c.</i>
162		47300	Jualan runcit bahan api kenderaan di kedai khusus <i>Retail sale of automotive fuel in specialized store</i>
163		47411	Jualan runcit komputer, peralatan dan kelengkapan komputer <i>Retail sale of computers, computer equipment and supplies</i>
164		47413	Jualan runcit peralatan telekomunikasi <i>Retail sale of telecommunication equipment</i>
165		47510	Jualan runcit di kedai khusus yang menjual tekstil <i>Retail sale of textiles in specialized stores</i>
166		47520	Jualan runcit bahan binaan, hardwer, cat dan kaca <i>Retail sale of construction materials, hardware, paints and glass</i>
167		47597	Jualan runcit sistem keselamatan <i>Retail sale of security systems</i>
168		47598	Jualan runcit barangan dan peralatan isi rumah t.t.t.l. <i>Retail sale of household articles and equipment n.e.c.</i>
169		47611	Jualan runcit bekalan dan peralatan pejabat <i>Retail sale of office supplies and equipment</i>
170		47612	Jualan runcit buku, surat khabar dan alat tulis <i>Retail sale of books, newspapers and stationery</i>
171		47711	Jualan runcit pakaian, artikel bagi bulu binatang dan aksesori pakaian <i>Retail sale of articles of clothing, articles of fur and clothing accessories</i>

BIL.	SUBSEKTOR <i>SUBSECTOR</i>	MSIC	KETERANGAN MSIC <i>MSIC DESCRIPTION</i>
172	Perdagangan borong & runcit <i>Wholesale & retail trade</i>	47721	Jualan runcit di kedai khusus yang menjual barang farmaseutikal, perubatan dan ortopedik <i>Stores specialized in retail sale of pharmaceuticals, medical and orthopaedic goods</i>
173		47736	Jualan runcit minyak tanah, gas memasak, batu arang dan kayu api <i>Retail sale of household fuel oil, cooking gas, coal and fuel wood</i>
174		47737	Jualan runcit cermin mata dan barang optik lain <i>Retail sale of spectacles and other optical goods</i>
175		47739	Jualan runcit di kedai khusus yang menjual barang baru lain t.t.t.l. <i>Other retail sale of new goods in specialized stores n.e.c.</i>
176		47742	Jualan runcit barang elektrik dan elektronik terpakai <i>Retail sale of second-hand electrical and electronic goods</i>
177	Pengangkutan dan penyimpanan <i>Transportation and storage</i>	49224	Perkhidmatan operasi teksi dan limosin <i>Taxi operation and limousine services</i>
178		49230	Pengangkutan muatan melalui jalan raya <i>Freight transport by road</i>
179		50113	Sewaan bot santai dengan krew bagi pengangkutan laut dan pesisir pantai <i>Rental of pleasure boats with crew for sea and coastal water transport (e.g. for fishing cruises)</i>
180		50121	Pengangkutan muatan laut dan pesisir pantai, berjadual atau tidak berjadual <i>Transport of freight over seas and coastal waters, whether scheduled or not</i>

BIL.	SUBSEKTOR <i>SUBSECTOR</i>	MSIC	KETERANGAN MSIC <i>MSIC DESCRIPTION</i>
181	Pengangkutan dan penyimpanan <i>Transportation and storage</i>	50122	Pengangkutan tunda atau tolak tongkang, pelantar minyak <i>Transport by towing or pushing of barges, oil rigs</i>
182		50211	Pengangkutan penumpang melalui sungai, terusan, tasik dan laluan air pedalaman lain <i>Transport of passenger via rivers, canals, lakes and other inland waterways, including inside harbours and ports</i>
183		51102	Pengangkutan penumpang tidak berjadual <i>Non-scheduled transport of passenger by air</i>
184		51202	Pengangkutan muatan udara tidak berjadual <i>Non-scheduled transport of freight by air</i>
185		51203	Penyewaan peralatan pengangkutan udara dengan operator untuk tujuan pengangkutan muatan <i>Renting of air-transport equipment with operator for the purpose of freight transportation</i>
186		52100	Perkhidmatan penggudangan dan penyimpanan <i>Warehousing and storage services</i>
187		52211	Operasi kemudahan terminal <i>Operation of terminal facilities</i>
188		52219	Aktiviti perkhidmatan lain berkaitan pengangkutan darat t.t.t.l. <i>Other service activities incidental to land transportation n.e.c.</i>
189		52221	Operasi perkhidmatan pelabuhan dan limbungan <i>Port, harbours and piers operation services</i>
190		52222	Perkhidmatan penyelamat dan pengapungan semula kapal <i>Vessel salvage and refloating services</i>

BIL.	SUBSEKTOR <i>SUBSECTOR</i>	MSIC	KETERANGAN MSIC <i>MSIC DESCRIPTION</i>
191	Pengangkutan dan penyimpanan <i>Transportation and storage</i>	52229	Aktiviti perkhidmatan lain berkaitan pengangkutan air t.t.t.l. <i>Other service activities incidental to water transportation n.e.c.</i>
192		52231	Operasi kemudahan terminal <i>Operation of terminal facilities</i>
193		52241	Perkhidmatan pemunggaran <i>Stevedoring services</i>
194		52249	Aktiviti pengendalian kargo lain t.t.t.l. <i>Other cargo handling activities n.e.c.</i>
195		52291	Penghantaran muatan <i>Forwarding of freight</i>
196		52292	Pembrokeran ruang kapal dan kapal terbang <i>Brokerage for ship and aircraft space</i>
197		52299	Aktiviti sokongan pengangkutan lain t.t.t.l. <i>Other transportation support activities n.e.c.</i>
198	Makanan dan minuman <i>Food and beverage</i>	56101	Restoran dan restoran yang juga kelab malam <i>Restaurants and restaurant cum night clubs</i>
199		56210	Katering makanan <i>Event/food caterers</i>
200		56290	Aktiviti perkhidmatan makanan lain <i>Other food service activities</i>
201	Maklumat dan komunikasi <i>Information and communication</i>	58201	Aplikasi perniagaan dan aplikasi lain <i>Business and other applications</i>
202		58203	Sistem operasi <i>Operating systems</i>
203		61101	Perkhidmatan aktiviti telekomunikasi berwayar <i>Wired telecommunications services</i>
204		61300	Perkhidmatan telekomunikasi satelit <i>Satellite telecommunications services</i>
205		61909	Aktiviti telekomunikasi lain t.t.t.l. <i>Other telecommunications activities n.e.c.</i>

BIL.	SUBSEKTOR <i>SUBSECTOR</i>	MSIC	KETERANGAN MSIC <i>MSIC DESCRIPTION</i>
206	Maklumat dan komunikasi <i>Information and communication</i>	62010	Aktiviti pengaturcaraan komputer <i>Computer programming activities</i>
207		62021	Perundingan komputer <i>Computer consultancy</i>
208		62022	Aktiviti pengurusan kemudahan komputer <i>Computer facilities management activities</i>
209		62091	Sistem keselamatan Teknologi Maklumat dan Komunikasi (ICT) <i>Information Communication Technology (ICT) system security</i>
210		62099	Aktiviti perkhidmatan teknologi maklumat lain t.t.t.l. <i>Other information technology service activities n.e.c.</i>
211		63111	Aktiviti penyediaan infrastruktur untuk hosting, perkhidmatan prosesan data dan aktiviti yang berkaitan <i>Activities of providing infrastructure for hosting, data processing services and related activities</i>
212		63112	Aktiviti prosesan data <i>Data processing activities</i>
213		63990	Aktiviti perkhidmatan maklumat lain t.t.t.l. <i>Other information service activities n.e.c.</i>
214	Kewangan <i>Finance</i>	64999	Aktiviti perkhidmatan kewangan lain, kecuali insurans/takaful dan tabungan pencen, t.t.t.l. <i>Other financial service activities, except insurance/takaful and pension funding n.e.c.</i>
215	Hartanah <i>Real estate</i>	68104	Pembangunan bagi projek yang dibina untuk operasi sendiri spt. untuk sewaan ruang di dalam bangunan <i>Development of building projects for own operation, i.e. for renting of space in these buildings</i>

BIL.	SUBSEKTOR <i>SUBSECTOR</i>	MSIC	KETERANGAN MSIC <i>MSIC DESCRIPTION</i>
216	Hartanah <i>Real estate</i>	68109	Aktiviti hartanah bagi harta milikan sendiri atau pajakan t.t.t.l. <i>Real estate activities with own or leased property n.e.c.</i>
217		68202	Pengurusan hartanah atas dasar bayaran atau kontrak <i>Management of real estate on a fee or contract basis</i>
218	Profesional <i>Professional</i>	70100	Aktiviti ibu pejabat <i>Activities of head offices</i>
219		70201	Perkhidmatan perundingan pengurusan perniagaan <i>Business management consultancy services</i>
220		70202	Perkhidmatan perundingan sumber manusia <i>Human resource consultancy services</i>
221		70209	Aktiviti perundingan pengurusan lain t.t.t.l. <i>Other management consultancy activities n.e.c.</i>
222		71101	Perkhidmatan arkitek <i>Architectural services</i>
223		71102	Perkhidmatan kejuruteraan <i>Engineering services</i>
224		71103	Perkhidmatan juru ukur tanah <i>Land surveying services</i>
225		71109	Aktiviti arkitek dan kejuruteraan lain dan perundingan teknikal berkaitan t.t.t.l. <i>Other architectural and engineering activities and related technical consultancy n.e.c.</i>

BIL.	SUBSEKTOR <i>SUBSECTOR</i>	MSIC	KETERANGAN MSIC <i>MSIC DESCRIPTION</i>
226	Profesional <i>Professional</i>	71200	Ujian teknikal dan analisis <i>Technical testing and analysis</i>
227		72102	Penyelidikan dan pembangunan kejuruteraan dan teknologi <i>Research and development on engineering and technology</i>
228		72106	Penyelidikan dan pembangunan teknologi maklumat dan komunikasi <i>Research and development on Information Communication Technology (ICT)</i>
229		72109	Penyelidikan dan pembangunan sains semula jadi dan kejuruteraan lain t.t.t.l. <i>Research and development on other natural science and engineering n.e.c.</i>
230		74101	Aktiviti hiasan dalaman <i>Activities of interior decorators</i>
231		74200	Aktiviti fotografi <i>Photographic activities</i>
232		74903	Perunding keselamatan <i>Security consulting</i>
233		74904	Aktiviti juru ukur bahan <i>Activities of quantity surveyors</i>
234		74905	Aktiviti perunding selain daripada perunding arkitek, kejuruteraan dan pengurusan <i>Activities of consultants other than architecture, engineering and management consultants</i>
235		74909	Aktiviti profesional, saintifik dan teknikal lain t.t.t.l. <i>Any other professional, scientific and technical activities n.e.c.</i>

BIL.	SUBSEKTOR <i>SUBSECTOR</i>	MSIC	KETERANGAN MSIC <i>MSIC DESCRIPTION</i>
236	Pentadbiran dan khidmat sokongan <i>Administrative and support</i>	77101	Penyewaan dan pemajakan operasi kereta penumpang (tanpa pemandu) <i>Renting and operational leasing of passenger cars (without driver)</i>
237		77102	Penyewaan dan pemajakan operasi trak, treler pelbagai guna dan kenderaan rekreasi <i>Renting and operational leasing of trucks, utility trailers and recreational vehicles</i>
238		77293	Penyewaan dan pemajakan barang kemas, peralatan muzik, hiasan latar dan kostum <i>Renting and leasing of jewellery, musical instruments, scenery and costumes</i>
239		77301	Penyewaan dan pemajakan operasi, tanpa operator, untuk mesin dan kelengkapan lain yang biasanya digunakan sebagai barang modal oleh industri <i>Renting and operational leasing, without operator, of other machinery and equipment that are generally used as capital goods by industries</i>
240		77305	Penyewaan dan pemajakan operasi jentera dan kelengkapan pertanian dan perhutanan tanpa pengendali <i>Renting and operational leasing of agricultural and forestry machinery and equipment without operator</i>
241		77306	Penyewaan dan pajakan operasi jentera dan kelengkapan pembinaan dan kejuruteraan awam tanpa pengendali <i>Renting and operational leasing of construction and civil-engineering machinery and equipment without operator</i>

BIL.	SUBSEKTOR <i>SUBSECTOR</i>	MSIC	KETERANGAN MSIC <i>MSIC DESCRIPTION</i>
242	Pentadbiran dan khidmat sokongan <i>Administrative and support</i>	77307	Sewaan dan pajakan operasi jentera dan kelengkapan pejabat tanpa pengendali <i>Rental and operational leasing of office machinery and equipment without operator</i>
243		77309	Penyewaan dan pajakan mesin bagi jentera, kelengkapan dan barang ketara t.t.t.l. <i>Renting and leasing of other machinery, equipment and tangible goods n.e.c.</i>
244		78100	Aktiviti agensi penempatan pekerjaan <i>Activities of employment placement agencies</i>
245		78200	Aktiviti agensi pekerjaan sementara <i>Temporary employment agency activities</i>
246		78300	Penyediaan sumber manusia kepada perniagaan pelanggan <i>Provision of human resources for client businesses</i>
247		79110	Aktiviti agensi pengembaraan <i>Travel agency activities</i>
248		80100	Aktiviti keselamatan persendirian <i>Private security activities</i>
249		80200	Aktiviti perkhidmatan sistem keselamatan <i>Security systems service activities</i>
250		81100	Aktiviti sokongan gabungan pelbagai kemudahan <i>Combined facilities support activities</i>
251		81210	Pembersihan am bangunan <i>General cleaning of buildings</i>
252		81291	Pembersihan semua jenis bangunan <i>Cleaning of buildings of all types</i>
253		81293	Pembersihan mesin perindustrian <i>Cleaning of industrial machinery</i>
254		81295	Perkhidmatan pembersihan kawalan haiwan perosak yang tiada kaitan dengan pertanian <i>Cleaning of pest control services not in connection with agriculture</i>

BIL.	SUBSEKTOR <i>SUBSECTOR</i>	MSIC	KETERANGAN MSIC <i>MSIC DESCRIPTION</i>
255	Pentadbiran dan khidmat sokongan <i>Administrative and support</i>	81296	Aktiviti disinfeksi dan penghapusan <i>Disinfecting and exterminating activities</i>
256		81297	Pembersihan kapal tangki <i>Cleaning of sea tankers</i>
257		81299	Aktiviti pembersihan bangunan dan perindustrian t.t.t.l. <i>Other building and industrial cleaning activities, n.e.c.</i>
258		81300	Aktiviti perkhidmatan penjagaan dan penyelenggaraan landskap <i>Landscape care and maintenance service activities</i>
259		82301	Mengurus, mempromosi dan/atau mengendali acara <i>Organization, promotions and/or management of event</i>
260		82990	Aktiviti perkhidmatan sokongan perniagaan t.t.t.l. <i>Other business support service activities n.e.c.</i>
261	Pendidikan swasta <i>Private education</i>	85302	Pendidikan kolej dan universiti (Swasta) <i>College and university education (Private)</i>
262		85499	Pendidikan lain t.t.t.l. <i>Others education n.e.c</i>
263		85500	Perkhidmatan sokongan pendidikan untuk peruntukan kepada perkhidmatan bukan pengajaran <i>Educational support services for provision of non-instructional services</i>
264	Kesihatan swasta dan kerja sosial <i>Private health and social work</i>	86201	Perkhidmatan perubatan am <i>General medical services</i>
265		86909	Perkhidmatan kesihatan kemanusiaan lain t.t.t.l. <i>Other human health services n.e.c.</i>

Lampiran 2: Senarai aktiviti teras OGSE Appendix 2: List of Core OGSE Activities

Kod	Kumpulan Group	Kategori Utama Core categories	Keterangan Description
01	Penerokaan Exploration	Geologi / Simpanan <i>Geological / Reservoir</i>	Perkhidmatan berkaitan dengan analisis geologi dan simpanan serta penilaian <i>Services related to geological and reservoir analysis and evaluation</i>
02		Perkhidmatan geofizik / perundingan - penerokaan <i>Geophysical services/consultancy - exploration</i>	Perkhidmatan yang berkaitan dengan tinjauan geofizik, analisis dan tafsiran data dalam peringkat penerokaan <i>Services related to geophysical surveys, analysis and data interpretation in exploration stage</i>
03		Perkhidmatan pembangunan tapak / pengurusan simpanan <i>Field development / reservoir management services</i>	Perkhidmatan yang melibatkan pembangunan dan pengurusan tapak minyak dan gas serta simpanan <i>Services involving the development and management of oil and gas fields and reservoirs</i>
04	Pembangunan Development	Perundingan pengurusan projek <i>Project management consultancy</i>	Perkhidmatan perundingan yang tertumpu kepada pengurusan projek dalam industri minyak dan gas <i>Consultancy services focused on project management in the oil and gas industry</i>
05		Perundingan kejuruteraan <i>Engineering consultancy</i>	Perkhidmatan perundingan yang menyediakan kepakaran reka bentuk kejuruteraan untuk projek-projek minyak dan gas <i>Consultancy services providing engineering design expertise for oil and gas projects</i>

Kod	Kumpulan Group	Kategori Utama Core categories	Keterangan Description
06	Pembangunan Development	Perundingan kesihatan, keselamatan dan persekitaran (HSE) <i>Health, safety and environment (HSE) consultancy</i>	Perkhidmatan perundingan yang mengkhusus dalam amalan Kesihatan, Keselamatan dan Persekitaran (HSE) <i>Consultancy services specializing in Health, Safety and Environment (HSE) practices</i>
07		Perkhidmatan geofizik / perundingan - pembangunan <i>Geophysical services/consultancy - development</i>	Perkhidmatan yang berkaitan dengan tinjauan geofizik, analisis dan tafsiran data dalam peringkat pembangunan <i>Services related to geophysical surveys, analysis and data interpretation in development stage</i>
08		Perkhidmatan geomatik <i>Geomatics services</i>	Perkhidmatan yang melibatkan pemerolehan, analisis dan pemetaan data geospasial <i>Services involving geospatial data acquisition, analysis, and mapping</i>
09		Perkhidmatan jaminan kualiti / kawalan kualiti <i>Quality assurance (QA) / Quality control (QC) services</i>	Perkhidmatan Jaminan Kualiti dan Kawalan Kualiti memastikan patuhan kepada piawaian dan peraturan <i>Quality Assurance and Quality Control services ensuring adherence to standards and regulations</i>
10		Reka bentuk bangunan <i>Building design</i>	Perkhidmatan reka bentuk untuk kemudahan minyak dan gas, termasuk tempat kediaman <i>Design services for oil and gas facilities, including living quarters</i>
11		Fabrikasi platform utama <i>Major platform fabricator</i>	Perkhidmatan fabrikasi untuk platform luar pesisir utama <i>Fabrication services for major offshore platforms</i>

Kod	Kumpulan Group	Kategori Utama Core categories	Keterangan Description
12	Pembangunan Development	Fabrikasi platform kecil <i>Minor platform fabricator</i>	Perkhidmatan fabrikasi untuk platform luar pesisir kecil <i>Fabrication services for minor offshore platforms</i>
13		Pembinaan kemudahan di daratan <i>Construction of onshore facilities</i>	Perkhidmatan pembinaan untuk kemudahan minyak dan gas darat seperti kilang penapisan, loji pemprosesan dan terminal penyimpanan, di daratan <i>Construction services for onshore oil and gas facilities such as refineries, processing plants, and storage terminals, on land</i>
14		Pembinaan kemudahan luar pesisir <i>Construction of offshore facilities</i>	Perkhidmatan pembinaan untuk kemudahan minyak dan gas luar pesisir termasuk, pengepasan paip, dan pembangunan infrastruktur dasar laut <i>Construction services for offshore oil and gas facilities including, pipeline laying, and subsea infrastructure development</i>
15		Kapal sokongan luar pesisir <i>Offshore support vessel</i>	Kontraktor yang menyediakan kapal sokongan untuk operasi Luar pesisir <i>Contractors providing support vessels for offshore operations</i>
16		Kontraktor pemasangan saluran paip <i>Pipeline installation contractor</i>	Kontraktor pakar dalam pemasangan saluran paip minyak dan gas. <i>Contractors specializing in the installation of oil and gas pipelines</i>

Kod	Kumpulan <i>Group</i>	Kategori Utama <i>Core categories</i>	Keterangan <i>Description</i>
17	Pembangunan <i>Development</i>	Floating storage and offloading (FSO) / pemilik floating production storage and offloading (FPSO) / operator / kontraktor <i>Floating storage and offloading (FSO) / Floating production storage and offloading (FPSO) owner / operator / contractor</i>	Pemilikan, operasi dan perkhidmatan kontrak untuk kapal FSO dan FPSO <i>Ownership, operation, and contracting services for Floating Storage and Offloading (FSO) and Floating Production Storage and Offloading (FPSO) vessels</i>
18		Dasar laut (pembangunan) <i>Subsea (development)</i>	Perkhidmatan yang berkaitan dengan infrastruktur dan operasi dasar laut <i>Services related to subsea infrastructure and operations</i>
19		Pelantar penggerudian <i>Drilling rigs</i>	Peralatan khusus yang digunakan untuk menggerudi telaga untuk penerokaan dan pengeluaran sumber minyak dan gas <i>Specialized equipment used to drill wells for the exploration and production of oil and gas resources</i>
20		Perkhidmatan penggerudian <i>Drilling services</i>	Menyediakan perkhidmatan penggerudian untuk menjalankan operasi penggerudian untuk penerokaan dan pengeluaran minyak dan gas <i>Provides drilling services to carry out drilling operations for oil and gas exploration and production</i>

Kod	Kumpulan <i>Group</i>	Kategori Utama <i>Core categories</i>	Keterangan <i>Description</i>
21	Pembangunan <i>Development</i>	Perkhidmatan telaga / penyiapan telaga <i>Well services / well completions</i>	Termasuk aktiviti seperti intervensi telaga, pemangkin dan penyiapan untuk mengoptimumkan prestasi dan produktiviti telaga minyak dan gas <i>Includes activities such as well intervention, stimulation, and completion to optimize the performance and productivity of oil and gas wells</i>
22		Perkhidmatan makmal <i>Lab services</i>	Perkhidmatan makmal minyak dan gas untuk ujian dan analisis <i>Oil and gas laboratory services for testing and analysis</i>
23	Pengeluaran <i>Production</i>	Penyelenggaraan - paip & injap / struktur <i>Maintenance - piping & valve / structural</i>	Perkhidmatan penyelenggaraan untuk paip, injap, dan komponen struktur <i>Maintenance services for piping, valves, and structural components</i>
24		Penyelenggaraan - elektrik & instrumentasi <i>Maintenance - electrical & instrumentation</i>	Perkhidmatan penyelenggaraan untuk sistem Elektrik dan Instrumentasi <i>Maintenance services for Electrical and Instrumentation systems</i>
25		Penyelenggaraan - mekanikal (berputar) <i>Maintenance - mechanical (rotating)</i>	Perkhidmatan penyelenggaraan untuk peralatan mekanikal berputar <i>Maintenance services for rotating mechanical equipment</i>
26		Penyelenggaraan - mekanikal (statik) <i>Maintenance - mechanical (static)</i>	Perkhidmatan penyelenggaraan untuk peralatan mekanikal statik <i>Maintenance services for static mechanical equipment</i>
27		Penyelenggaraan - saluran paip <i>Maintenance - pipeline</i>	Perkhidmatan penyelenggaraan khusus untuk saluran paip <i>Maintenance services specific to pipelines</i>

Kod	Kumpulan <i>Group</i>	Kategori Utama <i>Core categories</i>	Keterangan <i>Description</i>
28	Pengeluaran <i>Production</i>	Penyelenggaraan - peralatan keselamatan <i>Maintenance - safety equipment</i>	Perkhidmatan penyelenggaraan peralatan keselamatan <i>Maintenance services for safety equipment</i>
29		Perkhidmatan tenaga manusia <i>Manpower services</i>	Perkhidmatan bekalan tenaga manusia untuk projek-projek minyak dan gas <i>Manpower supply services for oil and gas projects</i>
30		Fabrikasi & pembaikan kecil <i>Minor fabrication & repair</i>	Menyediakan perkhidmatan fabrikasi dan pembaikan berskala kecil untuk komponen dan peralatan yang digunakan dalam operasi minyak dan gas <i>Provides small-scale fabrication and repair services for components and equipment used in oil and gas operations</i>
31		Perkhidmatan bawah air <i>Underwater services</i>	Perkhidmatan untuk pemeriksaan dan penyelenggaraan bawah air <i>Services for underwater inspections and maintenance</i>
32		Perkhidmatan integriti aset <i>Asset integrity services</i>	Perkhidmatan yang memberi tumpuan kepada mengekalkan integriti aset sepanjang kitaran hayat mereka <i>Services focused on maintaining asset integrity throughout their lifecycle</i>
33		Kesihatan, keselamatan, persekitaran (HSE) & keselamatan <i>Health, safety, environment (HSE) & security</i>	Perkhidmatan yang komprehensif meliputi aspek kesihatan, keselamatan dan alam sekitar dan keselamatan <i>Comprehensive services covering health, safety, environment (HSE) and security aspects</i>
34	Pengeluaran <i>Production</i>	Pembersihan alam sekitar / pelupusan sisa <i>Environmental clean-up / waste disposal</i>	Perkhidmatan yang berkaitan dengan pembersihan alam sekitar dan pelupusan sisa <i>Services related to environmental cleanup and waste disposal</i>

Kod	Kumpulan Group	Kategori Utama Core categories	Keterangan Description
35		Perkhidmatan kapal laut <i>Marine vessel services</i>	Perkhidmatan menyokong kapal laut untuk operasi luar pesisir <i>Services supporting marine vessels for offshore operations</i>
36		Perkhidmatan helikopter / pengangkutan udara <i>Helicopter / air transportation services</i>	Perkhidmatan pengangkutan melalui helikopter atau udara untuk operasi luar pesisir <i>Transportation services via helicopter or air for offshore operations</i>
37		Perkhidmatan pengangkutan darat <i>Land transportation services</i>	Perkhidmatan pengangkutan melalui darat untuk projek-projek minyak dan gas <i>Transportation services via land for oil and gas projects</i>
38		Perkhidmatan pergudangan & penyimpanan <i>Warehousing & storage services</i>	Perkhidmatan untuk pergudangan dan penyimpanan peralatan dan bahan <i>Services for warehousing and storage of equipment and materials</i>
39		Kapal tangki kargo <i>Cargo tankers</i>	Perkhidmatan kapal tangki untuk mengangkut kargo minyak dan gas <i>Tanker services for transporting oil and gas cargo</i>
40	Decommissioning	Decommissioning	Kontraktor yang mengkhusus dalam penamatan kemudahan minyak dan gas <i>Contractors specialized in decommissioning oil and gas facilities</i>
41	Produk <i>Products</i>	Bekalan & perkhidmatan bahan kimia <i>Chemicals supply & services</i>	Bekalan dan perkhidmatan yang berkaitan dengan bahan kimia yang digunakan dalam operasi minyak dan gas <i>Supply and services related to chemicals used in oil and gas operations</i>

Kod	Kumpulan Group	Kategori Utama Core categories	Keterangan Description
42		Dasar laut (produk) <i>Subsea (products)</i>	Peralatan dan operasi yang terletak di bawah air, biasanya untuk aktiviti penerokaan dan pengeluaran <i>Equipment and operations located underwater, typically for exploration and production activities</i>
43		Peralatan penggerudian <i>Drilling equipment</i>	Alat dan jentera yang digunakan untuk menggerudi telaga, termasuk pelantar, bit dan selongsong <i>Tools and machinery used for drilling wells, including rigs, bits, and casing</i>
44		Elektrik <i>Electrical</i>	Sistem dan komponen yang berkaitan dengan elektrik, termasuk pendawaian, penjana dan kawalan <i>Systems and components related to electricity, including wiring, generators, and controls</i>
45		Pemanasan, pengudaraan, dan penyaman udara (HVAC) <i>Heating, ventilation, and air conditioning (HVAC)</i>	Sistem Pemanasan, Pengudaraan dan Penyaman Udara untuk mengekalkan keadaan yang selesa <i>Heating, Ventilation, and Air Conditioning systems for maintaining comfortable conditions</i>
46		ICT	Sistem Teknologi Maklumat dan Komunikasi untuk pengurusan data dan komunikasi <i>Information and Communication Technology systems for data management and communication</i>
47	Produk <i>Products</i>	Instrumentasi <i>Instrumentation</i>	Peranti untuk mengukur dan mengawal pelbagai parameter seperti tekanan, suhu, dll <i>Devices for measuring and controlling various parameters such as pressure, temperature, etc</i>
48		Penebat <i>Insulation</i>	Bahan yang digunakan untuk meminimumkan pemindahan haba dan mengekalkan kestabilan suhu <i>Materials used to minimize heat transfer and maintain temperature stability</i>

Kod	Kumpulan Group	Kategori Utama Core categories	Keterangan Description
49		Sistem marin <i>Marine system</i>	Menyediakan peralatan dan sistem untuk operasi lepas pantai, untuk kapal, platform, dan penambatan <i>Providing equipment and systems for offshore operations, for vessels, platforms, and mooring</i>
50		Mekanikal <i>Mechanical</i>	Jentera dan komponen yang berkaitan dengan sistem mekanikal, seperti pam, pemampat, dll <i>Machinery and components related to mechanical systems, such as pumps, compressors, etc</i>
51		Riser	Paip menegak atau pemasangan paip yang digunakan untuk menyambung telaga dasar laut ke permukaan untuk pengeluaran atau penggerudian. <i>Vertical pipe or assembly of pipe used to connect subsea wells to surface facilities for production or drilling</i>
52		Peralatan berputar <i>Rotating equipments</i>	Jentera dengan komponen berputar, seperti turbin, motor dan enjin <i>Machinery with rotating components, such as turbines, motors, and engines</i>
53	Produk <i>Products</i>	Sistem keselamatan <i>Safety system</i>	Sistem dan peralatan direka untuk memastikan keselamatan kakitangan dan aset <i>Systems and equipment designed to ensure the safety of personnel and assets</i>
54		Injap <i>Valves</i>	Peranti yang digunakan untuk mengawal aliran bendalir dalam saluran paip dan sistem lain <i>Devices used to control the flow of fluids within pipelines and other systems</i>
55		Peralatan gudang <i>Warehouse equipment</i>	Alat dan jentera yang digunakan untuk mengendalikan dan menyimpan bahan dalam gudang <i>Tools and machinery used for handling and storing materials in warehouses</i>
56		Alatan bengkel <i>Workshop tools</i>	Alat dan peralatan yang digunakan untuk aktiviti penyelenggaraan, pembaikan dan fabrikasi <i>Tools and equipment used for maintenance, repair, and fabrication activities</i>

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