

Recharge

for A Better Tomorrow

Our Sustainability Journey

Our progress to date on the sustainability front

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Sustainability Governance

A robust governance system drives the successful execution of our sustainability ambitions. Spearheaded by the Board and Executive Leadership Team, we adopt a top-down approach to sustainability, clearly delineating roles and responsibilities for improved accountability and integrity. The Board plays an active role in the governance and oversight of sustainability matters, with ongoing efforts to embed sustainability into the Board’s scopes. This is part of our continuous effort in strengthening sustainability governance for efficient decision-making and execution of sustainability-related matters.

This year, we appointed our first Vice President and Chief Sustainability Officer (CSO), who reports directly to the President and Group Chief Executive Officer (GCEO), to provide a dedicated focus on managing sustainability strategically in the company. We have also established a dedicated Sustainability Council, in line with the recent reorganisation of the Group. Chaired by the CSO, the Sustainability Council cascades decisions from the Board and Executive Leadership Team into implementation and deliberates bottom-up recommendations to the Executive Leadership Team and Board.

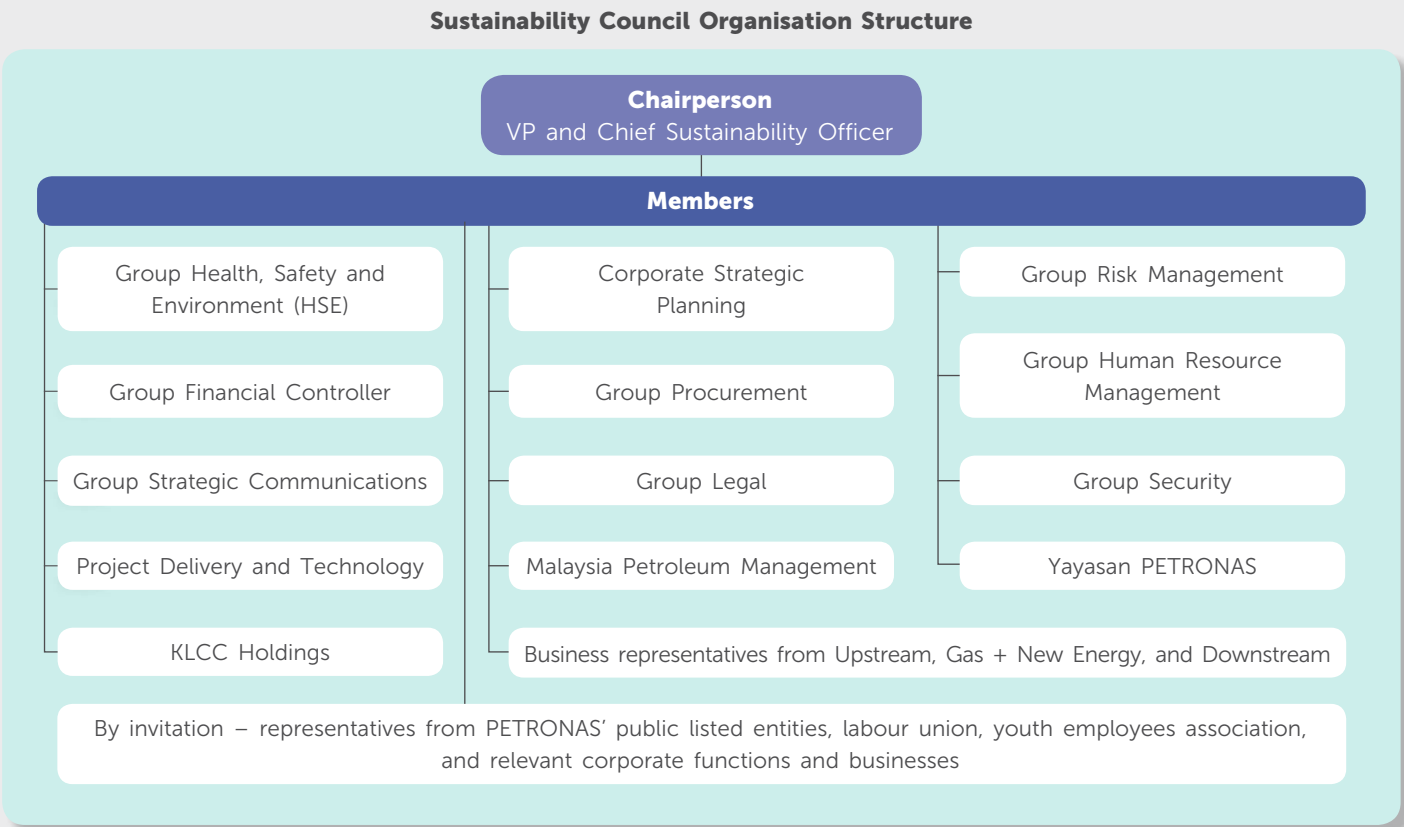
At the same time, the Executive Leadership Team receives periodic performance updates on key sustainability performance and progress across the Group either directly from the respective businesses or via the Sustainability Council. This enables sustainability issues to move up across all levels of the Group and allows the management team to maintain accountability for our sustainability targets.

A Future-Ready Board

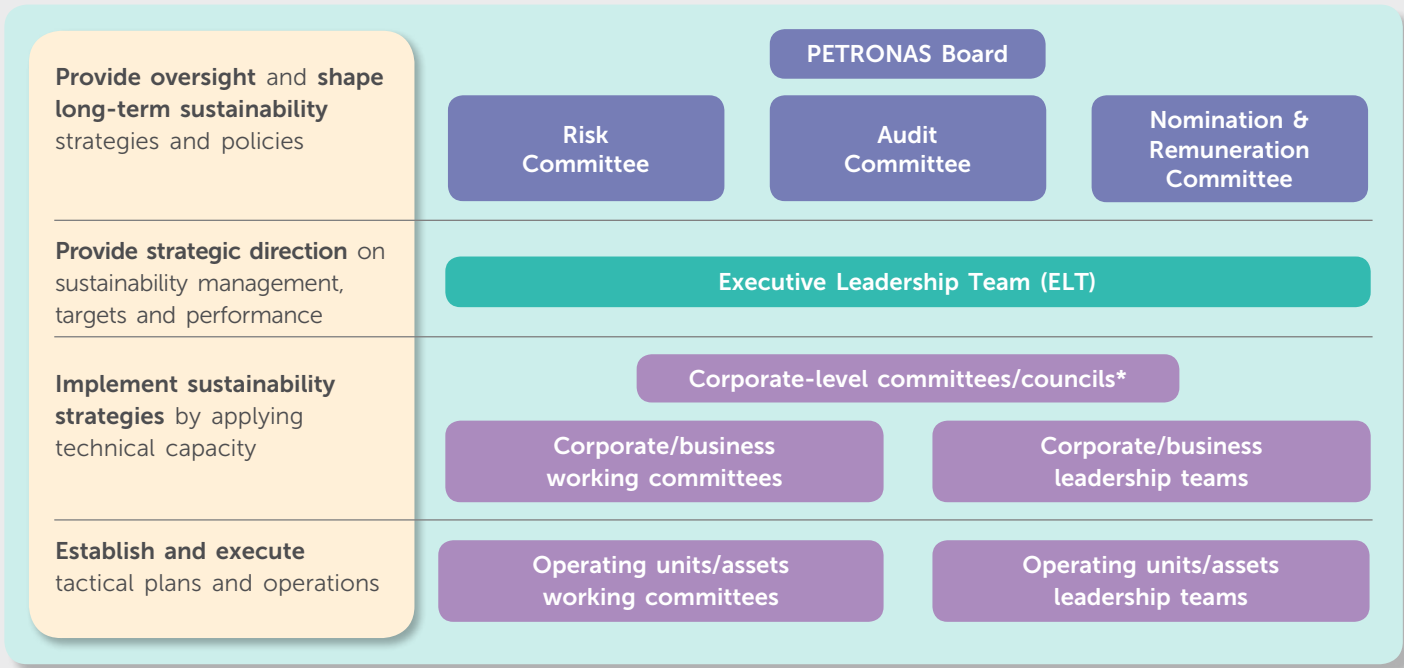
Board members undergo various sustainability-related training and engagements to keep abreast of emerging matters:

- Sustainability discussions as part of the annual strategic review and planning cycle.
- Imperatives of Human Rights and Just Transition.
- Engagements with external experts. In 2021 topics included net zero carbon emission strategies and carbon markets.

Sustainability Governance



PETRONAS’ Sustainability Governance Structure



Note:
* Corporate-level committees/councils include the Sustainability Council.

Key discussions deliberated at Sustainability Council in 2021 include:

- Endorsement of material topics.
- Monitored progress toward PETRONAS 2024 Sustainability targets.
- Apprised on the plan in charting a credible approach to our net zero carbon emissions by 2050 (NZCE 2050) aspiration.
- Apprised on CCS project progress.
- Apprised on commitment towards World Economic Forum’s Stakeholder Capitalism Metrics.
- Apprised on strategy in creating positive social impact through diversity and inclusion.
- Apprised on reputational issue analysis and Reputational Strength Index (RSI).

The implementation of our sustainability decisions is supported by other councils and committees:

- Security Risk and Oversight Committee.
- Health, Safety and Environment (HSE) Council.
- Diversity & Inclusion (D&I) Council.
- Whistleblowing/Central Complaint Management Committee.

Sustainability Governance

Memberships and Associations

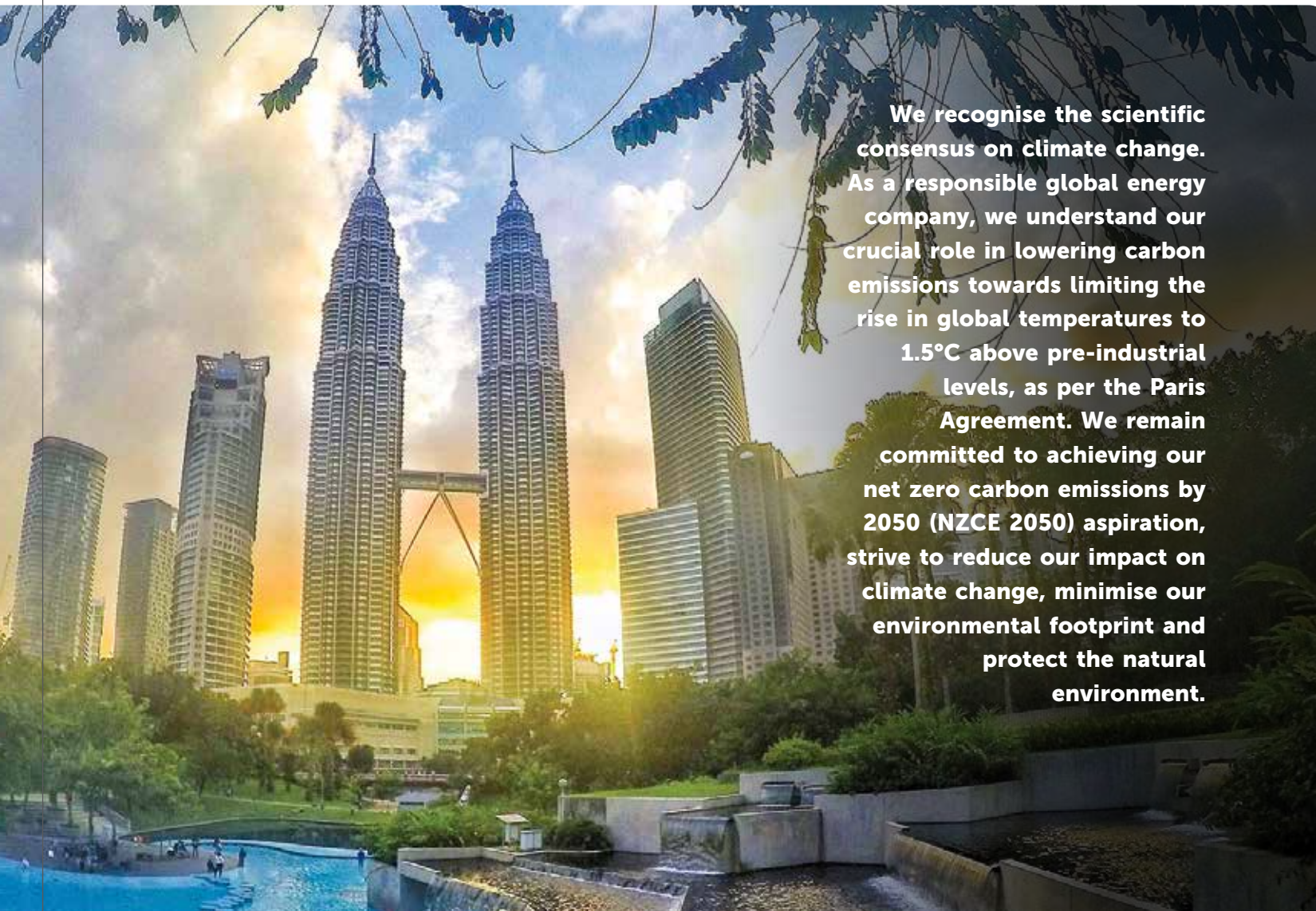
We actively participate in professional associations, events and memberships with the aim to strengthen our sustainability efforts. Through these various platforms, we are able to exchange knowledge on best practices to drive the sustainability agenda within and outside of our operations. This is part of our commitment to nation-building of Malaysia and creating positive impact across industries and society.

Memberships	
CEO Action Network (CAN)	<p>CAN is a peer-to-peer network of CEOs and Board members focused on sustainability advocacy, capacity building, action and performance. CAN represents 56 leading businesses and more than 20 business sectors in Malaysia.</p> <p>Our Contribution: President and Group CEO of PETRONAS, Datuk Tengku Muhammad Taufik chairs the CAN. In 2021, CAN hosted a series of 14 roundtable discussions, bringing together corporate leaders from different industry sectors, public sectors and civil society to discuss the national agenda of net zero emissions for Malaysia. The roundtables foster collaboration and partnership among private-public sectors, and support policy advocacy through strategic discussions amongst the public sector, regulators, civil society, industry associations and businesses.</p>
World Business Council for Sustainable Development (WBCSD)	<p>A CEO-led community of over 200 of the world’s leading businesses working collectively to accelerate the system transformations needed for a net zero, nature positive, and more equitable future.</p> <p>Our Contribution: We play an active role in WBCSD’s work programme to shape business narratives and performance on sustainability. Our top management is actively engaged in WBCSD’s workstreams and projects. Through WBCSD, we leverage thought leadership and collaboration with other global leaders to foster effective peer learning, enabling us to accelerate and scale up group-wide delivery of PETRONAS’ sustainability agenda.</p>
APEC Business Advisory Council (ABAC)	<p>The private-sector arm of the Asia-Pacific Economic Cooperation (APEC) comprising high level officials from 21 member countries, dedicated to advising leaders and other APEC officials on issues of business interest.</p> <p>Our Contribution: Our President and Group CEO, Datuk Tengku Taufik is a member of ABAC. He co-chaired the Climate Change priority with Malcolm Johns from ABAC New Zealand, under the ABAC Sustainability Working Group (SWG) led by ABAC China in the first ABAC meeting in 2022. The co-chairs presented recommendations to APEC Leaders and advised APEC officials on business sector priorities and concerns.</p>
Methane Guiding Principles (MGP)	<p>An international multi-stakeholder partnership developed collaboratively by a coalition of industry and civil society organisations. It focuses on reducing methane emissions across the natural gas supply chain, from production to final consumption.</p> <p>Our Contribution: As a member, we work together with other signatories and supporting organisations to foster effective methane management, and create transparency in emissions reporting aligned with internationally recognised frameworks and standards.</p>
Ipieca	<p>Ipieca was founded in 1974 at the request of the United Nations (UN) Environment Programme and remains the industry’s principal engagement channel with the UN particularly in the development or update of environment related international conventions.</p> <p>Our Contribution: As a member, PETRONAS is part of the collective energy industry to provide insights on key HSE and sustainability issues to global stakeholders. Additional participation in taskforces enables knowledge transfers including hands-on experience for subject matter experts and foresight to anticipate future regulations as many peers operate in highly regulated regimes such as on EU climate regulations. Beyond compliance, PETRONAS also benefits from the horizon scanning, knowledge sharing and guidance on the energy transition and other emerging trends.</p>

Sustainability Governance

Pledges	
World Bank’s Zero Routine Flaring by 2030 (ZRF) Initiative	<p>An initiative that commits governments and oil companies to end routine flaring no later than 2030, aiming to support cooperation between all relevant stakeholders so that solutions to gas flaring can be found through appropriate regulation, application of technologies, and financial arrangements.</p> <p>Our Contribution: We endorsed the global pledge on 4 November 2021 as part of our broader effort to strengthen transparency around our actions on climate change. This aligns with our aspiration to achieve NZCE 2050.</p>
Recommendations of the Task Force on Climate-related Financial Disclosures (TCFD)	<p>A framework for the type of information that companies should disclose to support investors, lenders, and insurance underwriters in appropriately assessing and pricing a specific set of risks, specifically risks related to climate change.</p> <p>Our Contribution: We acknowledge the importance of transparency on climate-related disclosures and expressed our public support for TCFD on 4 November 2021. We aim to commence our disclosure practice towards TCFD in 2023.</p>
World Economic Forum’s Partnering Against Corruption Initiative (PACI)	<p>A principal CEO-led platform in the global anti-corruption arena, building on the pillars of public-private cooperation, responsible leadership and technological advances, serving as the leading business voice on anti-corruption and transparency.</p> <p>Our Contribution: PETRONAS became a signatory of PACI on 21 July 2021, joining 90 other signatories across different sectors worldwide. In doing so, we strengthen our zero tolerance on corruption in all its forms and join collective action initiatives to increase public trust in business, deliver fair markets and level the playing field by fighting corruption.</p>
World Economic Forum’s Stakeholder Capitalism Metrics	<p>The Stakeholder Capitalism Metrics (the Metrics) was launched in September 2020 by the International Business Council of the World Economic Forum. The Metrics is a disclosure framework that aims to strengthen the ability of companies and investors in benchmarking progress on sustainability matters, and to enhance transparency of sustainability disclosures.</p> <p>Our Contribution: Commenced our reporting practice towards the Metrics in 2021. A cross reference table on the Metrics is available on page 276.</p>
Engagements	
ASEAN Energy Sector Methane Roundtable	<p>A series of regional roundtables held to intensify collaboration on methane emissions management by leveraging collective capabilities, global best practices and insights.</p> <p>Our Contribution: PETRONAS initiated and hosted the inaugural ASEAN Energy Sector Methane Roundtable in October 2021. We extended invitations to participants from key ASEAN energy players such as PTT, PERTAMINA and Shell, as well as international organisations, including Offshore Energies United Kingdom (OEUK), International Energy Agency (IEA), World Bank Group, United Nations Environment Programme (UNEP) and Methane Guiding Principles (MGP).</p>

Safeguard the Environment



We recognise the scientific consensus on climate change. As a responsible global energy company, we understand our crucial role in lowering carbon emissions towards limiting the rise in global temperatures to 1.5°C above pre-industrial levels, as per the Paris Agreement. We remain committed to achieving our net zero carbon emissions by 2050 (NZCE 2050) aspiration, strive to reduce our impact on climate change, minimise our environmental footprint and protect the natural environment.

Climate Change and Greenhouse Gas (GHG) Emissions

Why is it important?

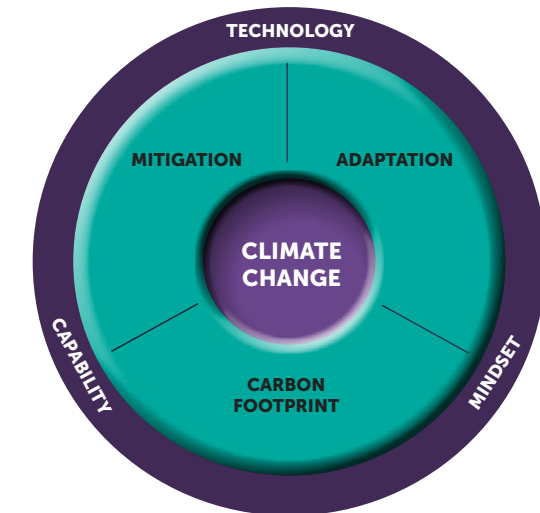
Our ability to reduce GHG emissions that contribute to climate change today will strengthen our future shared prosperity, societal well-being and business growth. Stakeholders are increasingly demanding scaled-up action on climate change, with the energy sector facing rising pressure to deliver. Given the complex nature of climate change, concerted efforts by governments, business and individuals are necessary to foster a transition to a sustainable future.

An inability to effectively minimise carbon emissions may lead to a loss of stakeholder trust in the energy sector. We also need to manage and prevent as far as possible the impact of extreme weather events on physical assets. Despite the challenges, business opportunities arise with the transition towards a low-carbon economy and bring possibilities to improve livelihoods and revitalise economies.

Safeguard the Environment

What is our position?

PETRONAS Carbon Commitments (PCC) were established in 2012 focusing on reducing flaring and venting, and improving energy efficiency. Subsequently the PCC have been enhanced with elements of carbon capture and storage (CCS), renewable energy, carbon offsets and carbon pricing.



The PETRONAS Climate Change Framework

PETRONAS Carbon Commitments consist of three key areas:

Planning and Projects

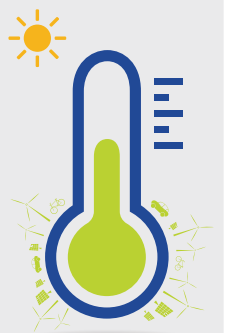
- Zero continuous flaring and venting of hydrocarbons shall be incorporated into the design philosophy of all new facilities and projects.
- Malaysia Petroleum Management (MPM) to apply for country-level carbon dioxide (CO₂) emissions allowance in the planning process of high CO₂ field development.
- Upstream high CO₂ field development shall incorporate carbon capture and storage (CCS) technologies at the design stage.
- Carbon pricing shall be considered in project decision-making with the option of carbon offsets where economically feasible.

Operations

- Zero continuous venting of hydrocarbons for all existing facilities.
- Reduce continuous flaring of hydrocarbons for all existing facilities where operationally and economically feasible.
- Downstream and Gas + New Energy (G+NE) operating assets to meet and sustain top quartile energy performance.

Renewable Energy

- Renewable energy technologies are to be considered in all facilities and projects where operationally and economically feasible.



Our business development has increased focus on renewable energy, gas, LNG and hydrogen as these forms of energy will drive the energy transition towards a lower carbon economy and ensure the security of energy supply.

To increase our resilience in the energy transition, we work closely with our partners, suppliers and contractors throughout the supply chain. As part of our efforts to reduce methane emissions, we have joined other industry and non-industry members under the Methane Guiding Principles (MGP) initiative as a signatory member. The rising demand for clean energy has also prompted the move towards CCS development and hydrogen, as part of our strategy to reduce carbon from our assets and develop a carbon capture business.

We continue to leverage technology and digital solutions, namely the PETRONAS Environment and Social Performance Integrated and Centralised System (EPICS), to gain end-to-end visibility of our efforts to improve environmental performance throughout our value chain.

Safeguard the Environment

What did we do in 2021?

Climate Change Mitigation

Operational Emissions

- Recorded total GHG emissions of 45.2 million tonnes of carbon dioxide equivalent (tCO₂e), further details can be found on page 218.
- GHG emissions reduction of 4.1 million tCO₂e per year.
- Upstream operations achieved a 27.3 per cent reduction in GHG intensity, mainly contributed by flaring and venting reduction.
- GHG emissions reduction in PETRONAS can be clustered into three main areas as below:
 - Flare Reduction:** Achieved mainly in Upstream operations in Malaysia through flare gas recovery projects and improvements in compressor capacity
 - Vent Reduction:** Occurred in Upstream operations in Malaysia, mainly from vent-to-flare conversion and vent recovery projects
 - Energy Efficiency:** Achieved through operational excellence efforts such as optimisation of gas turbine operations and process optimisation initiatives, mainly from Downstream and G+NE businesses
- Endorsed the World Bank's Zero Routine Flaring by 2030 initiative, where we commit to end routine flaring of associated gas from our oil production.

Methane Emissions Management

- Initiatives to reduce methane emissions were driven by the establishment of PETRONAS Carbon Commitments in 2012. Through flaring and venting reduction initiatives, we have reduced 0.38 million tonnes of methane since 2013.
- Established PETRONAS methane emissions quantification and reporting standard as well as a handbook for improving the completeness and transparency of methane emissions.
- Set up a dedicated task force to implement effective quantification and reduction of methane.
- Completed methane emissions baseline study in selected Upstream Malaysia offshore and onshore assets, using insights to improve methane emissions inventory.
- Engaged with internal and external stakeholders, including upstream service providers, to improve awareness, understanding and capabilities in methane emissions management. We also shared the latest developments in methane measurement and technologies to improve current practices.

Improved Solutions

- Generated 2,321.2 MWh from our solar Photovoltaic (PV) systems at 11 sites, avoiding 1,352.8 tCO₂e.
- Upgraded PETRONAS Dynamic Diesel to meet Euro 5 standards at petrol stations nationwide, making it the widest and most accessible network of Euro 5 compliant diesel in Malaysia.
- Fully leveraged renewable energy at PETRONAS Lubricant International's Arexons car care and multipurpose lubricant plant in Cernusco, Italy, classified as a Zero Scope 2 GHG emissions operation.

Low-Carbon Partnerships

- Collaborated with Abu Dhabi National Oil Company (ADNOC) and Masdar to pursue clean energy solutions by exploring joint participation in large scale solar and wind opportunities for utilities and commercial/industrial customers in Asia.
- Partnered with ENEOS Corporation to jointly develop, a competitive, clean hydrogen supply chain in Malaysia and Japan, as well as explore other hydrogen opportunities.

Carbon Storage

- The identified CCS field for Kasawari Gas Field's CO₂ has completed subsurface maturation suited for CCS site, and Conceptual Engineering Design was approved in Q4 2021.
- In our efforts to build storage volume potential, we have identified 19 potential storage sites (6 saline aquifers and 13 depleted fields) to offer CCS as an option for carbon management solutions in Malaysia and regional industries. Given such intent, PETRONAS has adopted a collaborative approach with both oil and gas (O&G) and non O&G players to progress the CCS work further.

E-mobility

- PETRONAS Dagangan Berhad (PDB) entered into a partnership with Mercedes-Benz to deploy EV chargers at PETRONAS stations along the North-South Expressway and part of the East Coast Expressway to enable end-to-end coverage of fast chargers.
- Introduced a new range of iona electric vehicle (EV) fluids, designed for Original Equipment Manufacturer (OEM) first-fill applications in November 2021.

Safeguard the Environment

Climate Adaptation

- Embarked on addressing the need for PETRONAS businesses and facilities to adapt to climate change by conducting a global high-level screening on the most vulnerable regions and countries in the world.
 - Established the PETRONAS ADAPT team with people from various disciplines; including Health, Safety and Environment (HSE); operations and maintenance; design and engineering; and crisis management teams.
 - Organised training programmes to close the knowledge gap in Climate Change Adaptation among PETRONAS staff. Carried out in the first half of 2021, the ultimate goal is to address the concerns about the physical impacts of climate change at a groupwide level. These programmes were conducted at eight PETRONAS operation sites – Bintulu and Miri in Sarawak, Johor, Kedah, Labuan, Melaka, Pahang and Terengganu.
- Conducted capacity building on the management of physical impacts of climate change as well as a high-level desktop vulnerability assessment across several sites in Malaysia.
 - Developed a five-year Adaptation Activity Plan to facilitate our Adaptation needs and journey for the coming years.
- Conducted a workshop on climate change risks which focused on identified risks, and developed enterprise-level risk statements, aligned with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) to improve awareness on climate change risk and prepare for future TCFD disclosures.
- Conducted capacity building on the management of physical impacts of climate change, as well as a high-level desktop vulnerability assessment for several sites in Malaysia.

Partnerships and Collaborations

- Participated as speakers and panellists in several international conferences such as Sabah Climate Change International Conference (SCCIC) and Expo 2020 Dubai where we reaffirmed our pledge to reduce our carbon footprint.
- Organised the second Electric Vehicle Fluids Webinar, themed Accelerating Efficiency, Revolutionising e-mobility, which was attended by 150 participants comprising industry experts, OEM partners, academia, and suppliers worldwide.
- Commenced a series of stakeholder roundtable discussions in the Southeast Asia region to advocate for the importance of managing methane to deliver lower carbon energy.

What did we achieve?

GHG Emissions Reduction

- 6.4 per cent** reduction in GHG emissions to 45.2 million tCO₂e in 2021 from 48.3 million tCO₂e in 2020
- 32.4 per cent** reduction in methane emissions to 0.23 million tonnes of methane in 2021 from 0.34 million tonnes of methane in 2020
- 0.3 million tCO₂e** (8.8 MMscfd) reduction in flaring in 2021
- 3.6 million tCO₂e** (26.8 MMscfd) reduction in venting in 2021
- 0.2 million tCO₂e** reduction through energy efficiency initiatives
- 1,352.8 tCO₂e** avoided in Scope 2 GHG emissions due to renewable energy power generation of 2,321.2 MWh

Safeguard the Environment

Responsible Waste Management

Why is it important?

Waste generation presents a broader challenge that affects human health, livelihoods, the environment, and economic growth. Poor waste management can reap a variety of negative consequences to our stakeholders and business environment, such as air and water contamination, hygiene and health concerns. Limiting our waste and increasing circularity will reduce environmental footprints and operational costs.

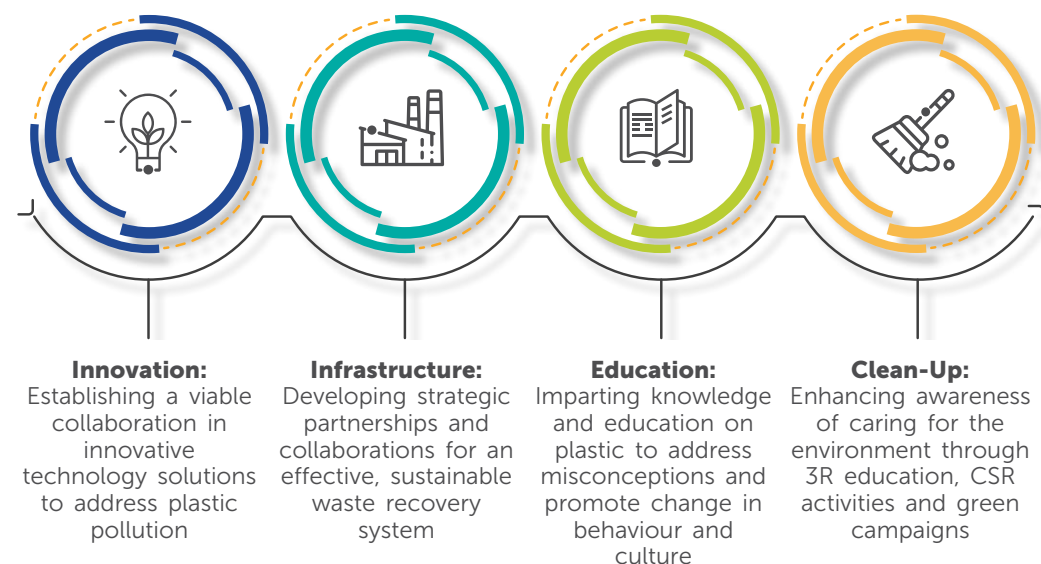
A major component of the global waste problem is plastic. The throwaway culture has resulted in the rapid disposal of single-use plastic, which may persist in the environment for hundreds of years. This presents significant environmental and health issues, as plastics can end up in oceans and food systems, affecting the entire ecosystem. To combat this problem while still providing the social benefits of plastic, we need to apply circular economy principles to transform into a New Plastics Economy (NPE). Through the NPE initiative, plastics never end up as waste. Instead, they re-enter the economy as valuable products, thus creating improved economic and environmental outcomes. By driving the nation's NPE, we continue to build our competitive advantage and resilience with the aim to drive the solutions to this global problem.

What is our position?

As a commitment to contributing towards United Nations' 12th Sustainable Development Goal – Responsible Consumption and Production, we have set the path towards waste reduction via the 3R (reuse, recycle and recover) practice. We implement plans and procedures on waste management at all PETRONAS operating sites. Activities producing waste are identified along with the type, quantity, frequency of generation, handling requirements as well as treatment and disposal methods. We also conduct periodic assurance on our waste management efforts while looking for ways to minimise waste generation. Furthermore, waste performance indicators are reported every month to a centralised reporting platform.

Meanwhile, through PETRONAS Chemicals Group Berhad (PCG), we aim to spearhead the nation's transition into NPE. This involves collaborating with the Malaysian authorities and relevant stakeholders through the Malaysia Sustainable Plastic Alliance (MaSPA), which complements the actions set out in the Malaysia Roadmap towards zero single-use plastics (2018-2030). Additionally, PCG explores ways to convert end-of-life plastic waste into pyrolysis oil, creating an end product of certified circular polymer resins. Based on this roadmap, we are targeting to recover 100 per cent of the plastic waste of our polymer production volume for the Malaysian market by 2030.

PETRONAS' four key workstreams of NPE:



Safeguard the Environment

What did we do in 2021?

Waste Management

- 124,884 metric tonnes of waste generated, a 36 per cent increase from 92,019 metric tonnes in 2020.
- Hazardous waste generated in 2021 increased to 59,228 metric tonnes, mainly from PETRONAS Energy Canada Ltd (PECL) drill cuttings (PECL contributed 43 per cent of total hazardous waste generated) that require disposal at secure landfills. As with other assets under PETRONAS, PECL is exploring waste minimisation options to reduce hazardous waste disposal.
- Conducted periodic assurance at our waste contractors' facilities to verify that all aspects of waste management conformed to established waste management procedures and regulatory frameworks. The findings of the assurance at waste contractors' facilities were tracked to closure and documented for our reference.
- Waste performance data are monitored by all PETRONAS Operating Units (OPUs) on a monthly basis.

New Plastics Economy

• Innovation

- Collaborated with Plastic Energy Ltd to develop a solution that turns non-recyclable plastic waste into crude naphtha and further processes it into polymers, which acts as feedstock for plastic production.
- Performed a feasibility study with Plastic Energy Ltd to construct a plastic waste to crude naphtha facility in Malaysia. The objective of the study is to bring the technology to Malaysia by turning low quality, mixed plastic waste from landfills into naphtha quality pyrolysis oil. The end product will be used as feedstock for polymer production, enabling PCG to offer certified circular polymers.
- Explored other innovative solutions based on the three focus areas:
 - o ReDESIGN: Enhance the recyclability of plastic materials
 - o ReGENERATE: Regenerate end-of-life plastics into valuable materials
 - o ReNEWABLE: Develop renewable-based plastic materials
- Conducted a process trial of converting plastic waste into circular naphtha at a PETRONAS refinery in Melaka.

• Infrastructure

- Secured feedback supply for projects currently ongoing in collaboration with local recyclers.
- Initiated internal and external collaborations to improve the recovery of recyclable materials through our internal 3R programme involving PCG OPUs and other PETRONAS Business Units, such as PETRONAS Gas Berhad.

• Education

- Developed and distributed Plastics, Sustainability and You Education (PSYE) modules to schools in Malaysia, in collaboration with the Ministry of Education (MOE), Solid Waste Management and Public Cleansing Corporation (SWCorp) and Malaysian Plastics Manufacturers Association (MPMA).
- Held live webinar sessions on Pusat STEM Negara's social media channels for primary and secondary school students as well as teachers. We also conducted webinar sessions for:
 - o Public and school students through *Karnival Sains* Sabah Edition, in collaboration with PETROSAINS and the Ministry of Science, Innovation and Technology Sabah
 - o Employees of the Prime Minister's Office and its agencies
 - o ASEAN polymer industry during the ASEAN Federation of Plastic Industries (AFPI) meeting and Asia Plastics Forum (APF) Conference in collaboration with MPMA. The participants were from 12 countries, namely Malaysia, Bangladesh, China, India, Indonesia, Japan, Myanmar, the Philippines, Singapore, Sri Lanka, Thailand and Vietnam.

• Clean-Up

- Conducted clean-up initiatives through our Be Green Programme, which encourages surrounding communities in our areas of operation to learn about the importance of preserving the environment through proper waste and plastics management.

Safeguard the Environment

What did we achieve?

Waste Management

- **49,561 metric tonnes** of waste recycled/recovered, which is equivalent to **40 per cent** of the total waste generated by the Group.
- A decrease of oil in water content to **452 metric tonnes** in 2021 was due to operational improvement.



New Plastics Economy



- **Education**
 - Conducted nine webinar sessions nationwide, on **Plastics, Sustainability and You**, involving **130,000** teachers, students, government officers, industry players, the public and internal PETRONAS employees. The webinars aim to support NPE and educate the audience on sustainability and responsible plastics management.

Safeguard the Environment

Environmental Quality

Why is it important?

Our business is deeply connected to our planet's natural resources. As a responsible operator, we aim to minimise the impact of our operations on the surrounding environment. This means managing our freshwater withdrawal, air quality, potential spills and biodiversity conservation efforts to protect the environment.

What is our position?

We integrate progressive environmental stewardship practices into our business practices and operations. We do this by placing a high priority on ensuring compliance with international standards, namely the International Finance Corporation (IFC) Performance Standards on Environment and Social Sustainability, and the World Bank Group Environmental, Health and Safety Guidelines (EHS Guidelines) as well as leveraging tools and databases such as the World Resource Institute's (WRI) Aqueduct Water Stress Atlas and the Integrated Biodiversity Assessment Tool (IBAT).

PETRONAS' Environmental Focus Areas

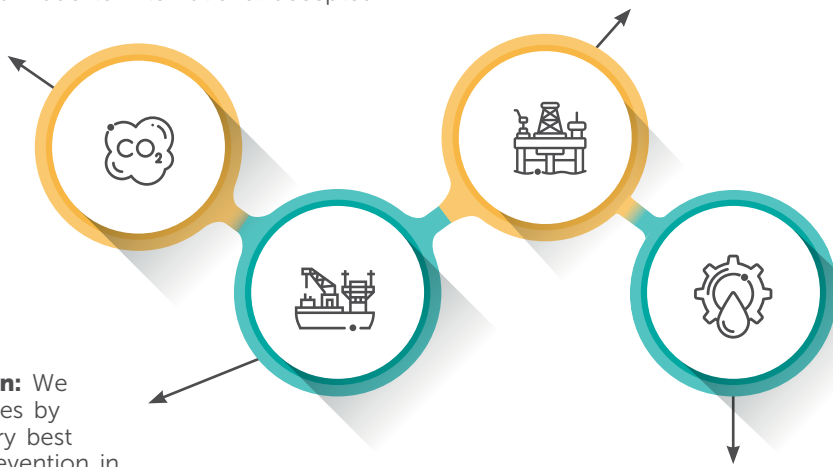
Air Emissions: Air emissions from our facilities are monitored, and risks are evaluated and addressed accordingly as part of our integrated air emissions management approach. To enhance data visibility, we developed an online monitoring platform that allows us to accelerate our response rate.

Our sulphur oxide (SOx) and nitrogen oxide (NOx) emissions are measured directly from continuous monitoring systems or periodic samplings. Measurement systems comply with host country requirements or in their absence, reference is made to international accepted standards.

Decommissioning: We ensure that the disposal of petroleum facilities adheres to the structured Decommissioning Option Assessment (DOA). We also work closely with the Department of Fisheries (DOF) to evaluate the feasibility of converting decommissioned oil and gas platforms into artificial reefs to maximise the lifetime of decommissioned structures and to contribute to marine biodiversity.

Oil Spills Prevention: We safeguard our facilities by incorporating industry best practices on spill prevention in the design of our facility, implementing scheduled inspection and maintenance programmes, and applying lessons learnt from spill incidents.

Water Management: We implement internal standards, policies and initiatives to optimise our freshwater withdrawal. Our water management focuses on three main pillars – conducting water accounting, understanding water availability, and increasing water use efficiency. Freshwater withdrawal in areas at risk of water stress is regularly tracked, with the water system operating at best-achieved levels. Wastewater discharge from our facilities are monitored, and risks are evaluated and addressed.



Safeguard the Environment

What did we do in 2021?

Water

- **Freshwater Withdrawal**
 - Continued to track the best-achieved freshwater use intensity for the top 13 freshwater users that were first identified in 2020.
 - In 2021, PETRONAS' freshwater withdrawal increased by 11.1 million cubic meters, due to the inclusion of PETRONAS Refinery and Petrochemical Corporation Sdn Bhd (PRPC)'s Utilities and Facilities (UF) which is currently undergoing start-up. PRPC UF's freshwater withdrawal is 14 per cent of PETRONAS' total withdrawal volume.
 - To ensure freshwater use is within design efficiency, water balance and internal procedures on water systems for PRPC UF have been established.
- **Wastewater Discharge**
 - Continued to monitor discharges from onshore and offshore installations.
 - Continued to conduct water risk-based assessment updates for all our onshore and offshore platforms.

Air Emissions

- Continued to monitor emissions from all stationary emission sources.
- The decrease in sulphur oxide (SOx) emissions value by 47 per cent was attributable to the decommissioning of Engen Petroleum's refinery in Durban and operational improvement in PETRONAS Floating LNG (PFLNG).

Environmental Health

- Embarked on a voluntary, evidence-based management system for improved environmental health. This ensured safety and control measures were well integrated into our operations without impacting the environment and human health.
- Since 2018, we have been conducting baseline Human Health Risk Assessments (HHRA) at selected domestic operations to evaluate community exposure to chemicals in ambient air and groundwater.
- In 2021, we established new baseline HHRA for identified PETRONAS facilities at domestic and international locations.

Oil Spill Prevention

- Co-hosted with Malaysia's Department of Environment (DOE) a regional hybrid oil spill response exercise involving 17 agencies and three countries namely Malaysia, Indonesia, and Singapore.
- Conducted an Oil Spill Response Capability Assessment (OSRCA) for employees from various PETRONAS OPU. The exercise aimed at helping participants:
 - Understand the core of oil spill management.
 - Conduct semi-quantitative oil spill risk assessments.
 - Identify appropriate response options to mitigate credible scenarios.
 - Compare the requirements against the available preparedness procedures and provide recommendations.

Decommissioning

Governance

- Strengthened relationships with the National Security Council via National Security Council – Malaysia Petroleum Management (MPM) Annual Engagement Session for upstream oil and gas activities. The National Security Council took no exception to the planned decommissioning projects to be executed as well as securing approvals for marine resources used.
- Engaged with Malaysia-Thailand Joint Authority (MTJA) on:
 - Decommissioning best practices and lessons learnt for the mutual benefit of both parties;
 - Developing the Ministerial Regulation for Offshore Installation Decommissioning Standards to strengthen MTJA's pre-decommissioning processes, which is expected to be ready towards the end of 2022.
- Actively contributed to the International Association of Oil and Gas producers (IOGP) Decommissioning Committee which includes completion of IOGP Asset Retirement Obligation (ARO) White Paper and Habitat Retention Guide. PETRONAS was also appointed Co-Chair of IOGP's Asia Pacific (APAC) Decommissioning Sub-Committee to establish potential regional collaborations and region specific studies/projects.
- Collaborated with the Malaysian Oil and Gas Services Council (MOGSC), identifying four technologies that could potentially contribute to decommissioning cost compression efforts, and three companies interested to be involved in asset repurposing.

Safeguard the Environment

- Promoted Malaysia's decommissioning achievements and aspirations via the presentation, among others:
 - **Decommissioning in Malaysia: Learning and Moving Forward from 2020** to around 300 global operators and service providers during Decom Week 2021, organised by Decom North Sea, United Kingdom.
 - **Malaysia's Sustainable Decommissioning Framework** at the Oil & Gas UK (OGUK) Decommissioning Conference, attended by over 400 participants from across the globe.
- Signed the Decommissioning Side Agreement, a supplementary agreement to the Gumusut/Kakap - Geronggong/Jagus East Fields Unitisation Agreement, with the National Unitisation Secretariat (NUS) representing the Government of His Majesty The Sultan and Yang Di-Pertuan of Negara Brunei Darussalam.

New Solutions

- Developed an analytical software, PETRONAS Reefing Viability Index (RVI), to be able to assess the viability of offshore sites as reefing locations.
- Conducted reefing study in collaboration with academia led by Universiti Teknologi PETRONAS (UTP), focusing on site-specific reefing engineering, development of a strategic plan for sustainable Rigs-to-Reef programme, as well as socio-economic impact assessment to local communities, industries and stakeholders.

What did we achieve?

Water

- Completed a detailed **water risk study** in Labuan, one of the locations projected to experience water stress by 2050.
- Actively participated in the **Ipieca Water Working Group** and developed Ipieca's guidance document, Review of Drought and Flood Risk Tools.

Environmental Health

- **14 existing** baseline and **7 new** baseline HHRAs for air emissions.
- **2 existing** baseline and **6 new** baseline HHRAs for groundwater.
- From the new baseline HHRAs, we have identified areas of improvement to reduce chemical exposures in air emissions and groundwater, going beyond regulatory compliance.

Oil Spill Prevention

- Led the establishment of the **National Oiled Wildlife Response Plan** for Malaysia, in alignment with Global Oiled Wildlife Response System (GOWRS) and Ipieca best practices and guidelines.
- The oil spill response exercise demonstrated the effective communication between Malaysia, Indonesia and Singapore.
- **13 employees** trained in competent Oil Spill Response Capability Assessment (OSRCA).

Decommissioning

Continuous efforts towards sustainable decommissioning of Malaysia's disused Upstream facilities:

- Finalised the **10-year** Master Reefing Plan (MRP) with Department of Fisheries (DoF), covering **11 offshore** structures and identified locations for Rigs-to-Reef off-the-coast of Peninsular Malaysia.
- Successfully decommissioned two pipelines and repurposed one major trunk line with an aggregated cost saving of **17 per cent**, amounting to **RM12.9 million**.
- Completed three pipeline decommissioning projects and **13** wells plugged and abandoned, complying with local regulations and internal guidelines, which are aligned with established international guidelines and standards.

Safeguard the Environment

Biodiversity

Why is it important?

Biodiversity is an intricate web that encompasses all species, habitats, ecosystems and ecological processes that helps sustain life and the natural environment. It is closely tied to the growth of our natural resources, source of food and medicine; critical elements which contribute to our health, well-being and the overall economy. That is why we need to strengthen efforts and drive systemic shifts to promote nature conservation, preserve ecosystems and protect natural habitats. Our inability to mitigate biodiversity loss will have irreversible consequences on the environment, humans and economic activity. Permanent destruction of natural capital will further aggravate other risks.

The Post-2020 Global Biodiversity Framework, Taskforce on Nature-related Financial Disclosures (TNFD) and national policies such as the Malaysia National Policy on Biological Diversity (NPBD) are developments that aim to reverse biodiversity loss. At PETRONAS, we recognise the significance of nature and biodiversity to our business and communities in areas where we operate.

What is our position?

We will continue to take holistic actions to minimise our impact on biodiversity, at the policy level and on the ground, to reverse biodiversity loss. Thus, we are shifting our approach from compliance-based to strategic positioning on nature and biodiversity.

At PETRONAS, we adhere to stringent impact assessment and reporting standards on Biodiversity and Ecosystem Services (BES) set by the Global Reporting Initiative (GRI) and World Economic Forum (WEF). To protect biodiversity and ecosystem services in the areas where we operate, we identify BES risks, leveraging on Environmental Impact Assessments (EIAs) and BES Risk Assessments (BESRA), using tools such as Integrated Biodiversity Assessment Tool (IBAT) and be guided by our internal guidelines, such as the PETRONAS Technical Guidelines (PTG) on BES Management and industry best practices from organisations such as Ipieca, International Union for Conservation of Nature (IUCN), International Association of Oil & Gas Producers (IOGP) and World Business Council for Sustainable Development (WBCSD).

In line with our NZCE 2050 aspiration, PETRONAS strives to demonstrate visible leadership on Malaysia's nature and biodiversity agenda and the countries in which we have a presence. We aim to restore, maintain and enhance biodiversity as we recognise that climate and biodiversity are intertwined issues that need to be addressed in tandem.

What did we do in 2021?

- In 2020 the BES Risk Profiling for PETRONAS domestic operations was completed, utilising the Integrated Biodiversity Assessment Tool (IBAT), information from Environmental Impact Assessment (EIA) and other published information. As a result of the risk profiling, 9 per cent of PETRONAS' domestic operations were categorised as "very high" to "high" risk for BES. For these operations, a more detailed risk assessment - BESRA will be conducted and a Biodiversity Action Plan (BAP) will be implemented. In 2021, BESRA was conducted for PDB's terminals in Pasir Gudang, Johor and Langkawi, Kedah.
- PETRONAS recognises the need to work with other members of the wider business community towards BES management. To this end, PETRONAS is actively involved as a member of the Interim Working Group (IWG) to establish the Malaysia platform for Business and Biodiversity (MPBB). The MPBB is envisaged as a space for the private sector to discuss, share and collaborate on issues related to biodiversity conservation and its mainstreaming, in particular to support the implementation of the Malaysia National Policy on Biological Diversity (NPBD).
- Embarked on a tree-planting programme involving local communities in 14 sites across 11 states, a collaboration between Group HSE (GHSE), Yayasan PETRONAS and Global Environment Centre (GEC). The target is to plant 50,000 trees by the first quarter of 2022. This is also in conjunction with our Walk4Trees programme and aligned with the Ministry of Energy and Natural Resources (KeTSA)'s 100 million Tree-Planting Campaign.
- Conducted the Biodiversity Tech Talk as part of the awareness building process for employees. KeTSA Minister delivered the keynote address in a virtual event while we presented a paper on Malaysia's experience in Rigs-to-Reef, together with two other papers by KeTSA and Tenaga Nasional Berhad (TNB).



Safeguard the Environment

What did we achieve?

- Obtained endorsement for **new biodiversity metrics** by the PETRONAS HSE Council in November 2021 and reporting to commence in 2023 in line with the WEF's Stakeholder Capitalism Metrics and the Global Reporting Initiative (GRI) standards.
- **Planted close to 40,000 trees** from **14 community nurseries** established to supply seedlings for the programme, generate income and develop capabilities in nursery management and tree planting monitoring for the identified local communities.
- Organised the Biodiversity Tech Talk which was attended by **550 employees** and KeTSA representatives.



Positive Social Impact

Health and Safety

Our approach to sustainability begins with our employees, suppliers, and the communities in which we have a presence. To deliver sustainable and responsible growth, we stepped up efforts to respond in ways that would make a meaningful difference.

Why is it important?

The health, safety and overall well-being of our employees and contractors is a key priority given the complex nature of our work. We are constantly looking for ways to improve our processes to create a safe working environment because this ensures our employees and contractors achieve their full potential, and our assets remain productive. In addition to protecting our employees, communities, and other stakeholders throughout our value chain, health and safety excellence also gives us the license to operate over the long term. Our ability to drive a safety culture builds our brand reputation and strengthens our position as a caring employer and partner in the industry. It also helps us attract and retain high-performing talents.

Despite our best efforts, we are deeply saddened by the news of casualties suffered in 2021, where two out of three casualty incidents were related to land transport. We held the Safety Stand Down groupwide to pay our respects, honour their lives, foster involvement and reiterate the importance of safety. Efforts on land transport enhancement have been intensified by implementing the Fatigue Remedy and Sleep Hygiene programme at targeted entities, upskilling heavy vehicle drivers on land transport safety, and specific development of land transport procedures for newly acquired businesses. We had also recorded 10 Tier 1 Process Safety Events (PSE) in 2021, a slight increase from nine incidents in the previous year. A Tier 1 Process Safety Event is a Loss of Primary Containment (LOPC) with the greatest consequence as defined by API 754, Process Safety Performance Indicators for the Refining and Petrochemical Industries. It is an unplanned or uncontrolled release of any material, including non-toxic and non-flammable materials, from a process that results in one or more of the consequences as listed in the API 754. Through effective implementation of fire reduction intervention programmes including Fire Prevention and Mitigation Framework (FPMF), only one major fire incident was recorded out of the 10 Tier 1 PSE.

What is our position?

We view our people's overall safety, health, and well-being as a shared responsibility. To foster a Generative Health, Safety and Environmental (HSE) Culture, we have put in place a HSE policy, backed by a HSE Management System and Crisis and Incident Management System, all of which are aligned to the International Organisation for Standardisation's (ISO) 14001:2015/ISO 45000:2018.

To elevate Generative HSE Culture and enhance compliance, the HSE Accountability Behaviour and Reinforcement (HSE ABR) programme was rolled out groupwide to amplify and nurture Desired HSE Behaviours while simultaneously diminishing Undesired HSE Behaviours. In pursuing our annual goal of zero safety incidents and fatalities, we are constantly looking for ways to improve our processes and systems to make them safer through a structured assurance process focusing not only on existing operations but also on new business, which is enforced through a Post Acquisition Implementation Plan (PAIP).

Periodic exercises and drills are also conducted to ensure our emergency and crisis teams are equipped with the right competencies. Several other frameworks, namely Process Safety Loss of Primary Containment Reduction (PSLR) Framework, Fire Prevention and Mitigation Framework (FPMF), and the PETRONAS Contingency Planning Standard guidelines were also established to improve compliance levels. PETRONAS also leverages myHSSE, a one-stop digital solutions platform that presents challenges, insights, performance, emerging risks and other elements to help us mitigate risks.

What is our focus area?

Given the challenging environment caused by the COVID-19 pandemic, we continued to safeguard our employees and partners by focusing our efforts on mental health and wellness through programmes such as MIND-A-CARE, i-C4RE online, and myFriends. We intensified our effort by closely engaging with our partners, including suppliers and contractors, to strengthen grievance management and heighten HSE compliance in reducing incidents.

Efforts to sustain HSE performance were made through specific interventions focusing on culture, capability and competency, and compliance. Additionally, we continued to collaborate with relevant stakeholders to strengthen relations and nurture trust, including accelerating our readiness towards self-regulation, which has received endorsement from the Malaysian national authorities.

Positive Social Impact

Digital HSSE at PETRONAS

The myHSSE digital platform serves as our one-stop knowledge centre for all PETRONAS Health, Safety, Security and Environment (HSSE) matters.

By adopting a single information platform that houses all 18 systems of our HSSE digital solutions, each of which addresses different business pain points for users' easier access and fit-for-purpose usage.

We are also enabling users to harness the power of HSSE data to derive insights on HSSE performance, trends, emerging risks and other essential elements so that we can make proactive interventions. As we move towards our goal of realising predictive and even prescriptive HSSE analytics, we aspire for the Group HSSE endeavours to rise several notches higher.

<div> <div>SHIELD</div> <div> Stewardship, Health, Information and Environment Linked Database A unified platform to manage the PETRONAS HSE database. It contains modules on Occupational Health (OH), Industrial Hygiene (IH) and Product Safety (PS). </div> </div> <div> <div>SDS</div> <div> PETRONAS Safety Data Sheet A search portal that provides valuable information on PETRONAS' products in terms of product composition, labelling for containers and transport, safe handling and storage, incident management and compliance with regulations. </div> </div> <div> <div>myHealth</div> <div> myHealth One-stop centre for Approved Medical Examiners (AME) and medical practitioners to manage medical records submission. </div> </div> <div> <div>LegalEasy</div> <div> LegalEasy A solution to create a specific entity's legal register and conduct compliance audits against the legal register or selected legislations, which is based on a set of audit questions. </div> </div> <div> <div>FMS</div> <div> Fatigue Management System A centralised system to track and monitor the Hours-of-Service Limit (HSL) for PETRONAS' employees and contractors. </div> </div> <div> <div>ICMS</div> <div> Integrated Contractor Management System A system to screen contractors and prevent blacklisted personnel from entering PETRONAS' premises. </div> </div>	<div> <div>IPSS</div> <div> Integrated Process Safety Solution An integrated solution to optimise Process Safety work processes, provide governance oversight to minimise human error and ensure compliance, while providing valuable insights into risk management. </div> </div> <div> <div>e-Learning</div> <div> HSSE e-Learning A centralised digital platform that offers HSSE learning modules to employees. </div> </div> <div> <div>UAUC</div> <div> Unsafe Act, Unsafe Condition A centralised platform to report, track and provide analytics of Unsafe Act, Unsafe Condition and Safe Observation for PETRONAS groupwide. </div> </div> <div> <div>CMIS</div> <div> Crisis Management Information System A solution to minimise human actions by providing an assisted approach in managing a crisis through technology. </div> </div> <div> <div>EPICS</div> <div> Environment and Social Performance Integrated and Centralised System An integrated system that provides holistic environmental and social performance data management for compliance and sustainability reporting. </div> </div> <div> <div>MARS</div> <div> Monitoring and Reporting System An integrated and centralised system to report, record and monitor HSSE performance indicators for PETRONAS groupwide. </div> </div> <div> <div>e-RGO</div> <div> Ergonomics Management System An ergonomic self-assessment adjustment and case tool to reduce the risk of musculoskeletal disorders. </div> </div>	<div> <div>HIRA</div> <div> HSSE Integrated Risk Assessment An integrated system to manage and perform HSSE-related risk assessments. </div> </div> <div> <div>IM</div> <div> Incident Management A system to report, record and track actions on groupwide HSSE incidents and grievances for PETRONAS. </div> </div> <div> <div>AM</div> <div> Action Management A centralised platform to record and track groupwide HSSE-related action items for PETRONAS. </div> </div> <div> <div>HSE ABR</div> <div> HSE Accountability and Behaviour Reinforcement A digital solution to manage both positive and constructive reinforcements. </div> </div> <div> <div>PSRS</div> <div> PETRONAS Self-Regulation System A centralised digital platform for Plant Management System (PMS) implementation. It provides a platform for PMS compliance monitoring and information management through standardising work processes, data monitoring and performance reporting. </div> </div>
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myHSSE

Making Prescriptive Possible Because we care.

You will find specific instances of how some of PETRONAS' HSSE digital solutions are utilised throughout this Integrated Report. Just look for the myHSSE icon.

Positive Social Impact

What did we do in 2021?

Culture

At PETRONAS, we are working towards building a culture of Health and Safety as this will improve our processes, protect our employees and ensure our assets remain productive.

Change and Communication

- Increased the number of virtual trainings on Generative HSE Culture Leadership Programme (GCLP) targeting the Top Leaders, management of PETRONAS, Partners, Middle Managers, and frontliners.
- Connected leaders to Behaviour Series training programmes to help them understand human factors through Process Safety Essentials, Human Performance Improvement as well as HSE Accountability and Behaviour Reinforcement.
- Assessed PETRONAS Culture Maturity Survey (CMS) for domestic and international operations in 49 locations, which garnered more than 38,000 responses globally.
- Obtained endorsement for the National Occupational Safety and Health (OSH) Masterplan and Self-Regulation Framework through continuous engagements with the Department of Occupation, Safety and Health (DOSH) and Ministry of Human Resources Malaysia.

- Conducted risk assessments and implemented adequate controls and investigations on health-related incidents to protect our employees and communities from workplace health hazards.

Crisis and Incident Management

- Encouraged the learning culture across PETRONAS through six groupwide Failed Stories and Experience Sharing sessions.

Health

- Established a holistic mental health and well-being signature programme under the THINK RIGHT element of the MESTIfit4health initiative to:
 - address mental health issues and their risk factors at an early stage
 - promote mental resilience and psychological safety
 - manage mental health problems among employees and contractors.
- Strengthened Industrial Hygiene capabilities for non-HSE employees in specific focus areas, namely chemical management, hearing conservation, ergonomics, and COVID-19 controls via upskilling and communication programmes.



Positive Social Impact

- Conducted Walk4trees Challenge under the MOVE RIGHT element to plant 40,000 trees in 14 sites across 11 states. It is an element under the MESTIfit4health programme to drive active lifestyles and fulfil our responsibility towards the environment and community.
- Conducted eight Leaders Reach Out (LRO) sessions, led by PETRONAS President and Group CEO and the Executive Leadership Team (ELT), which provided a platform for open sharing and dialogues about mental health and wellness with the leaders. This was done to improve psychological safety and strengthen work culture through an empathetical approach by the leaders.

Safety Management

- Conducted 12 site assessments on Unsafe Act and Unsafe Condition (UAUC), implemented by Operating Plant Units (OPUs) and Project Sites, along with quarterly UAUC Implementation Working Group (IWG) engagements to enhance user experience.
- Implemented PETRONAS Contractor HSE Mentorship Programme, with commitment from the Senior Management of major contractors that subscribed to the programme, to improve the HSE system and culture with contractors.
- Introduced HSE Accountability and Behaviour Reinforcement (HSE ABR) to ensure a consistent approach and fairness across PETRONAS when recognising and rewarding Desired HSE Behaviour, including addressing Undesired HSE Behaviour.
- Improved Process Safety competencies and governance by benchmarking against industry standards and practices.

Compliance

We carry out various initiatives to improve our processes and address potential risks.

Crisis and Incident Management

- Collaborated with the Fire and Rescue Department of Malaysia (FRDM) to strengthen the regulatory compliance and governance as well as ensure business continuity.

Health

- Implemented an improved Food Poisoning Intervention plan across business units, OPUs and assets in collaboration with the Ministry of Health (MOH).
- Enhanced Fatigue Management System (FMS) at OPUs to prevent incidents, improve compliance based on PETRONAS requirements on fatigue management, and increase investment return.
- Strengthened Health Risk Management, focusing on engineering and digitalisation to improve compliance and prevent adverse health effects across the workforce (noise engineering in design, chemical management system and ergonomics management system).

Safety Management

- Established Operational Legal Areas Functional Checklist, a collaboration between GHSE and Group Legal.
- Conducted 12 Second Line Assurances and six HSE Due Diligence at selected businesses.
- Launched Organisation Management of Change (OMOC) digital modules to strengthen Integrated Process Safety Solutions to manage risks and ensure business continuity.
- Implemented a new practice of doing HSE induction for contractors' Senior Management across PETRONAS for companies awarded with significant contracts valued at RM500 million and above.

Self-Regulation

- Streamlined Generative HSE Culture to the Self-Regulation Culture and Behaviour Assessment in ensuring compliance with Plant Management System (PMS) requirements through Self-Regulation Programme.
- Conducted PMS Documentation Compliance Audit on PRefChem through collaboration with the Department of Occupation, Safety and Health (DOSH) in preparation for a start-up.
- Obtained endorsement for the Self-Regulation Framework through strategic taskforce collaboration and continuous engagement with DOSH and Ministry of Human Resources Malaysia in supporting the National OSH Masterplan.

Positive Social Impact

Capabilities and Competencies

A continuous effort to enhance employees’ HSE capability development and growth, drive sustainable HSE capability programmes, and embed overall HSE values and appreciation amongst our stakeholders and the larger community.

- Build HSE Leaders of Tomorrow:
 - Conducted continuous talent competency development via certification training such as Tripod Beta Investigation Tool, Oil Spill Response, Marine Safety, Fire and Emergency Response, Industrial Hygiene, Approved Medical Examiners, and more.
 - Conducted HSE Talent Outlook exercise to anticipate and build the required green capabilities to support our green ventures and NZCE 2050 aspiration.
- Design sustainable capabilities building programmes.
 - Structured the HSE Engineer programme to sustainably provide a pipeline of technically equipped and operationally experienced HSE engineers to line operations.
- Enhanced Fire Hazards Management proficiency by sharing 33 technical papers and conducting five TechTalk webinar series.
- Optimised the execution of emergency exercises through utilisation of digital tools and systems through Hybrid Emergency Response Exercise (HERE).
- Collaborated with Regional Leaders and government agencies in strengthening Natural Disaster Contingency Plan (NDCP) through emergency response exercises.
- Strengthened incident management capability by enhancing groupwide Incident Investigation team leaders, reflective learning and root cause analysis facilitators.
- Strengthened Industrial Hygiene awareness, knowledge and capability by introducing industrial webinars (4), upskilling programmes (2), HSE culture talks (2), and industrial hygiene infographics which resulted in 1,889 views.
- Enhanced collaboration with government bodies via an MoU with Fire and Rescue Department of Malaysia (FDRM) to elevate technical competency and sharing of emerging technology in Fire Safety Systems and Firefighting.
- Collaborated with external stakeholders to improve quality and knowledge:
 - **Contractors:** Engaged with partners that assured the presence of competent contractors at the worksite, and provided learning opportunities such as focused mentorship and technical guidelines.
 - **Institutions of Higher Education:** Collaborated with higher education institutions to encourage knowledge exchange between academia and industry; enhanced Universiti Teknologi PETRONAS (UTP) HSE Introductory module; and instill HSE values as we develop an HSE-conscious workforce.
 - **Professional Bodies** – Partnered with the Centre for Chemical Process Safety (CCPS) and Institution of Chemical Engineers (IChemE) Safety Centre (ISC) to encourage knowledge sharing on Process Safety for PETRONAS and the industry.
- Adopt Digitalised HSE Learning:
 - Established a sustainable HSE e-Learning and Blended Learning approach (virtual webinar and group workshops) to promote HSE upskilling anytime, anywhere, while providing just-in-time HSE knowledge to our stakeholders.
 - Enhanced and digitalised HSE Test assessments, with new modules included, such as Sustainable Development, to embed HSE and sustainability values across our frontliners (PETRONAS non-Executive Technicians).
 - Launched Organisation Management of Change (OMOC) digital modules to strengthen Integrated Process Safety Solutions to manage risks and ensure business continuity.

Positive Social Impact

What did we achieve?

Culture

Change and Communication

- PETRONAS Culture Maturity Survey results ascended the culture ladder to **Proactive (4.03)** from **Calculative (3.98)** level, with visible leadership and HSE ownership driven within line functions.
- Accomplished participation of **more than 2,300** leaders/supervisors/frontliners and programme Coaches/Facilitators through Generative HSE Culture (GC) programmes for Top Leaders, Middle Managers, *Rakan* HSE and Partners in accelerating GC HSE journey.
 - **387 leaders** trained under Generative HSE Culture Leadership Programme (GCLP), including top leaders and middle managers across all business units.
 - Over **2,000 frontline** supervisors were upskilled with the relevant capabilities to accelerate our HSE journey.
- Transformed challenges into opportunities by creating more avenues in sharing behaviour series, demonstrating efforts for care and keeping people for business continuity.

Safety Management

- Reported **32,378 unique users** under the Unsafe Act and Unsafe Condition (UAUC) initiative, a **14 per cent** increase from the previous year, demonstrating higher safety culture awareness levels among employees and contractors.
- **10 Senior Management** of major contractors expressed commitment and subscribed to the PETRONAS Contractor HSE Mentorship Programme.
- Obtained commendable Process Safety Culture Maturity Score amongst PETRONAS employees based on HSE Culture Maturity Survey **(4 out of 5)**.
- Established and rolled out the HSE Accountability and Behaviour Reinforcement (HSE ABR) Guideline. This Guideline was communicated through two e-learning modules and a series of groupwide communications, supported by the HSE ABR System.

Health

- **200 per cent** increase in the utilisation of PETRONAS Employee Assistance Programme (MyFriends) in 2021 compared to the previous three-year average (2018 – 2020), showing increased openness among employees to reach out to professionals to manage their problems.
- **74 per cent** improvement in resilience score among 840 participants involved in Individualised Coaching for Resilience Enhancement (i-C4RE).
- **15,023 employees** from PETRONAS global operations attended the eight Leaders Reach Out (LRO) sessions on mental health and well-being.
 - Received **4,045 comments** and feedback around four major areas – Wellness, Leadership, Working Arrangement and Employees Performance, leading to some immediate interventions such as subsidies for work from home expenses, individualised coaching programmes, and strict vaccination requirements for entry into work premises to manage COVID-19 risk.

Positive Social Impact

Compliance

Health

- **50 per cent** reduction in food poisoning cases in 2021 compared to a rolling five-year average (2016-2020).
- **Zero food poisoning** incidents involving in-house caterers.
- High Ministry of Health (MOH) Hygiene Standards among PETRONAS in-house caterers where **97 per cent** achieved MOH's Clean, Safe and Healthy (BeSS) certification and the remaining achieved Grade A Standard.
- **Zero** fatigue-related fatality and incident among OPU's applying Fatigue Management System.
 - Prevented **16,900** potential fatigued employees from entering **32** PETRONAS OPU's.
 - Achieved High compliance (**99.85 per cent**) for PETRONAS Technical Standard requirements on fatigue management among employees and contractors.
 - Reduction of **12.5 per cent** in fatigue management non-compliance frequency to 14,224 from 16,266 in 2020.
 - Saved **231,000 manhours** and **RM11.6 million** through the digitalisation of fatigue management, including automated checks on fatigue compliance at site, reduce administrative costs, and blocked entries of fatigue employees.
- Targeted noise reduction projects in several OPU's show significant noise reduction. Routine surveillance programme and close monitoring detected a few Occupationally-acquired Noise-Induced Hearing Loss (ONIHL) cases, and investigations were carried out to determine root causes and mitigate actions.
- **Zero cases** of over exposure to chemicals in 2021 and 2020.

Safety Management

- Improved compliance in managing organisational change as seen through increased Integrated Process Safety Solution (IPSS) utilisation rate.
- Through Safety Intervention Plans, we achieved:
 - **Aviation:** Sustained zero incidents.
 - **Maritime:** **20 per cent** reduction in Maritime Lost Time Injury incidents, with zero Fatal Accident Rate (FAR).
 - **Land Transport:** **17 per cent** reduction in Total Vehicle Accident Rate (TVAR) and **33 per cent** reduction in Vehicle Loss of Primary Containment (LOPC) recorded for Downstream.

Self-Regulation

- Facilitated Self-Regulation readiness for four endorsed OPU's through Structured Assurance and Culture Baseline Assessment.

Capabilities and Competencies

A progressive step towards Generative HSE capability building among our talents while impacting the larger community and society through our HSE capability efforts.

- Build HSE Leaders of Tomorrow:
 - Developed capability tools and framework for the development of Green and Clean Energy skillset.
 - Identified over **30 new** and emerging HSE skillsets to be developed for HSE professionals and established GHG Management as a new discipline.
- Designed sustainable capability building programmes:
 - Industrial Hygiene training resulted in:
 - o **16** trained professionals
 - o **23** Initial Ergo Trained Persons (ETPs)
 - o **21** Advanced ETPs.
 - Developed a sustainable pipeline of new HSE engineers for business and economic growth:
 - o **48** HSE engineers mobilised to line operations, with an accelerated HSE talent time-to-autonomy
 - Introduction of innovative learning infrastructure via digital and blended HSE learning resulting in:
 - o **7** HSE e-Learning modules shared to upskill all PETRONAS contractor personnel.
 - o **12** in-house HSE e-learning modules developed in 2021.
 - o Improved overall HSE competency level with a stronger HSE Technical Professional and competent person with Certificate of Competency (CoC) pool.
 - o Achieved **71 per cent** Process Cycle Efficiency through the digitalisation of the HSE Test process.
- Collaboration with external stakeholders to improve quality and knowledge:
 - Enhanced quality of HSE course module by rolling out enhanced HSE Introductory module for all Universiti Teknologi PETRONAS (UTP) first-year students.

Positive Social Impact

COVID-19 Response

Throughout 2021, PETRONAS moved swiftly to provide our employees, customers, clients, communities and those across our supply chain with relevant support during this challenging period of the COVID-19 pandemic. With a strong focus on maintaining their health and safety, we reached out to assist those in need and create a lasting positive impact in the communities where we are present.



Activity

PETRONAS Pandemic Preparedness and Response Team (PPRT), the Directives, Standard Operating Procedures (SOPs) and Mitigation Measures

- Established the COVID-19 PPRT at Holding Company, Business and Operating Units both at Malaysia and international operations to manage the transmission and impact of COVID-19.
- Set up a COVID-19 One-Stop Centre on the PETRONAS Intranet which acts as the main platform of the latest information including all the directives, technical guidelines and general information to guide employees on COVID-19 management.
- Developed Incident Action Plans and SOPs across all levels of the Group.
- Launched the COVID-19 Digital Platform (e-Health Vaccination Tracking) for employees to update their vaccination status and other mitigation measures, backed by 85 technical guidelines and directives to improve business continuity and safeguard the health and safety of the workforce.
- Provided medical emergency support to employees and contractors during the peak period of COVID-19, enabling them to obtain necessary treatment including admission into PETRONAS' panel hospitals.

PETRONAS Vaccination Centres

- Established six onshore Industry Vaccination Centres or *Pusat Pemberian Vaksin Industri* (PPVIN) in Pengerang Integrated Complex (PIC), Johor; Malaysia Refining Company Sdn Bhd (MRCSB), Melaka; Bintulu and Miri, Sarawak; and Kerteh and Pulau Duyong Jetty Terminal (PDJT), Terengganu; to help reduce the nationwide daily infection rates.
- Distributed hygiene kits to all employees.
- Conducted the first-of-its-kind outreach programme by setting up five offshore vaccination centres.

Highlights

- No major interruptions recorded due to timely and effective SOPs as well as direction/guidance given by PPRT and management.
- Achieved RM700,000 in cost savings from these internally-developed digital platforms, with no data breaches.
- Achieved 100 per cent utilisation for COVID-19 Digital Platform as all employees updated their vaccination status.
- RM4.0 million contributed by the six PPVINS to support the National Immunisation Programme.
- A total of 99.6 per cent of PETRONAS employees have been fully vaccinated.
- Over 1,000 employees' dependents, community members and school-going children vaccinated at the PPVs.
- RM750,000 contributed to *Pusat Pemberian Vaksin* (PPV) in Perlis, Kedah, Perak and Selangor.

Positive Social Impact

Activity

Green Bubble Strategy and Green Net

- Grouped different work areas as Green Bubbles to sustain business continuity throughout our operations, where personnel who entered these 'bubbles' are required to conduct COVID-19 testing.
- Established quarantine centres for employees from the Upstream and Gas operations at local hotel establishments to allow a smooth transition and changes in shifts.

My Personnel e-Tracker (MyPeT)

- Introduced a tracker for personnel to ensure minimal industry-wide disruptions across all operations and the value chain. MyPeT was designed to fill in the gaps for Upstream operations as the Malaysia's official MySejahtera app was only applicable for onshore locations.
- Monitored personnel movements, including contractors and subcontractors, from the embarkation point to their respective quarantine exit points.

Emergency Assistance and Financial Support

- Extended financial support to vaccinated employees, and International Assignees and their families who were returning to Malaysia.
- Provided financial reimbursements to employees and families based in PETRONAS operations across 30 countries for vaccinations done at private hospitals and remote working options for those obtaining vaccinations in their home countries over two months.

Government Relations

- Collaborated with internal and external stakeholders, including the Ministry of Health (MOH), Ministry of International Trade and Industries (MITI), National Security Council (MKN), National Disaster Management Agency (NADMA), Department of Occupational Safety and Health (DOSH), PETRONAS contractors and joint-venture partners to further enhance our COVID-19 response.

Highlights

- 33 assets worldwide implemented the Green Bubble Strategy and Green Net.
- Close to 100 per cent vaccination rates for the offshore ecosystem – Upstream, PFLNG, Malaysian Petroleum Management (MPM), Petroleum Arrangement Contractors (PACs), crew, with no major business disruptions.

- Ensured the safety of 10,000 offshore employees.
- Facilitated the process of contact tracing.

- Provided 200 emergency/non-emergency assistance to COVID-19 infected employees via partnerships with the private medical sector.

- Pursued strong collaborations with the government, government agencies and state governments.

Positive Social Impact

Activity

COVID-19 Disaster Relief

- Provided COVID-19 relief in the form of donations as well as necessary supplies to prevent, control and treat impacted communities located across our domestic and international assets (Azerbaijan, Brazil, Brunei, Canada, China, Egypt, Gabon, Gambia, India, Iraq, Italy, Myanmar, Mexico, South Sudan, Spain and Suriname).

Supply Chain

- Continued to support and ease Oil and Gas, Services and Equipment (OGSE) vendors by facilitating access to financing under the Vendor Financing Programme.

Split Work Arrangements

- Introduced PETRONAS Split Work Arrangement to encourage employees to be productive and thrive in any working environment. Flexible work options such as Compressed Work Week, Flexible Work Hour, Work from Home (WFH) arrangements, and also assistance allowance to set up a home office and connectivity fees were made available.

Highlights

- 1,507 hygiene kits distributed to frontliners and the community via collaborations with Resident Bintulu Office and Sebauh District Office, Sarawak respectively.

- Facilitated the approval and disbursement of funds totaling RM1.37 billion to 243 applicants since its inception in 2018.

- Strengthened remote working arrangements by introducing New Ways of Working Assistance, Connectivity Assistance and shared Remote Working Best Practices.



Positive Social Impact

Security

Why is it important?

Given the dynamic, volatile and asset-heavy nature of the energy industry, we remain susceptible to security exposures which could impact our interests. Our extensive value chain is exposed to a range of security externalities, from protest and terrorism to crime, among others. Unpredictability and adversaries affecting our Manufactured Capital, such as onshore and offshore assets, including oil rigs, platforms and refineries, may result in loss or operational disruption, thus affecting our ability to deliver optimum business and stakeholder value. A strong and secured physical security landscape enables us to operate in a safe environment. It enables smooth operations and uninterrupted productivity of our infrastructure. More importantly, allowing our people to achieve their truest potential wherever we operate.

What is our position?

Safeguarding our people, information, property and operations wherever we operate remains our fundamental priority as a vital business enabler. Backed by our goal of positioning Group Security as a Centre of Excellence, we focus on widening and improving our security ecosystem, pushing boundaries to close security gaps by deploying a suite of physical and technological security solutions. At the same time, enhancing our protective monitoring and data analytics efforts to propel proactive readiness amidst fluid geopolitical environments.

To this end, we continuously fortify our physical security controls, supported by the right tools, practices and people. We are guided by laws and regulations of the countries in which we operate, including internal governance mechanisms such as the PETRONAS Security Policy, Security Management Systems (SeMS) and Mandatory



Minimum Security Standards (M2S2). To continuously enhance our robustness throughout the energy value chain, we also implement targeted initiatives such as elevating compliance levels with the M2S2 and uptake of security considerations, generating predictive security insights and pursuing remote crisis management measures, enhancing maritime security as well as paving the way for accelerated skills and capability development in the niche domain of physical security management. In addition to these, expanding the roles and coverage of our PETRONAS Auxiliary Police – our pool of skilled frontliners.

Value Creation of Hybrid Emergency Response Exercise (HERE):



What did we do in 2021?

Security Governance and Assurance

- Completed the Safeguarding Operations, Assets and Resilience (SOAR) Project across 214 assets, elevating compliance levels in line with PETRONAS' M2S2 standards.
- Deployed creative solutions to optimise manpower, as well as accelerated schedules and processes to maximise value creation.
- Identified seven technology-driven initiatives to drive security operational excellence.

Proactive Security Risk Management

- Improved security governance through four Security Crisis Management Guidelines (SCMG), namely Demonstration and Protest, Kidnapping, Piracy and Sea Robbery and Terrorism.
- Nurtured dedicated subject matter experts through relevant skills and competency development programmes in identified areas to shape a strong talent pool.
- Collaborated with PETRONAS Technical Training Sdn Bhd (PTTSB), to develop targeted security capabilities modules for the energy sector.
- Progressed on establishing a Security Academy to provide learning opportunities in areas vital to physical security.
- Completed Phase 1 of digital security systems integration for Malaysian operations. Phase 2 covering our international operations is planned for execution in 2022.

Positive Social Impact

Protective Security Monitoring

- Institutionalised real time monitoring for swifter security analysis and business decision making.
- Extended information on timely travel security insights to heighten employees' preparedness levels and shared security acumens via onboarding sessions to improve PETRONAS sponsored scholars' security mindfulness.
- Ensured uninterrupted business operations and provided 24/7 support to employees and contractors during the COVID-19 lockdowns.

PETRONAS' Security Frontliners

- Reviewed the roles of security frontliners and explored the potential of elevating in-house capabilities via the usage of drones and enhanced maritime security skills.
- Intensified patrolling of our assets in Malaysia, including offshore and unmanned platforms.
- Stepped up our ability to better address emerging security risks, among others deployed body worn cameras for a pilot project at the PETRONAS Twin Towers.
- Enhanced security during the various containment measures to protect PETRONAS' interests, locally and abroad.

Security Compliance Culture

- Enhanced Security Compliance culture groupwide, premised on the "Security is Everyone's Responsibility" philosophy, where collectively more than 25 security awareness programmes via webinars, engagements, articles, videos and infographics were conducted.
- Held the PETRONAS Security Month 2021 in July to increase awareness on the importance of robust security practices in delivering a reliable, uninterrupted energy supply. Organised forums, centered on topics such as security behaviours, scams, substance misuse and international security.
- Conducted multidisciplinary engagements with non-security practitioners to understand and address direct and indirect security exposures, including security governance stipulations from other parts of the business.
- Embarked on the Group Security's three-pronged strategy covering activities namely, an internal survey, targeted stakeholder engagements and a comparative benchmarking exercise where improvement findings were incorporated into the Five-year Group Security Blueprint.

Stakeholder Engagement

- Intensified stakeholder engagement, both locally and abroad. This included internal and external constituents, for example enforcement and government agencies in Malaysia. The engagements largely focused on areas such as potential room for collaborations to sharing on good security best practices and security and human rights, as well as security incident management to uphold uninterrupted security operations.
- Collaborated with the PETRONAS Pandemic Preparedness and Response Team (PPRT) to conduct special awareness sessions entitled Safeguarding our Frontliners – The Dynamics of Risks, Choices and Decisions amidst COVID-19 to curb transmission risk among our security frontliners and their family members.

What did we achieve in 2021?

Awarded Honourable Mention under the (Remote Resilience category) at the 2021 Duty of Care Awards.

Security Governance and Assurance

- RM1 million** cost savings achieved through various negotiations of Price Agreement and fit-for-purpose security solutions.

Proactive Security Risk Management

- 30 PETRONAS Auxiliary Police personnel and executives from Group Security were honed as part of a Train the Trainer programme to realise the **Fit and Responsive** aspiration.

Security Protective Monitoring

- Successfully piloted an in-house real-time security monitoring to evaluate situational development in the countries where we operate.

Stakeholder Engagement

- Four Quarterly** Security International Operations Conclaves conducted, involving security personnel and decision-makers from PETRONAS' global operations.
- Inaugural mass virtual engagement also held within the Group Security fraternity with holistic participation by all levels of staff, for example Group Security Townhall as well as virtual health and wellness programmes.

Positive Social Impact

Human Rights

Why is it important?

Our commitment to social performance is managing impacts arising from areas of our business while contributing to the society in a responsible, ethical and transparent manner, in accordance with recognised standards in compliance with applicable legislation. Our social performance framework governs how we manage impacts in the areas of environment, health, safety, socio-economic and culture.

Respecting human rights is a vital component of our Social Performance Framework and we have identified salient human rights issues material to PETRONAS in these areas of our business where we operate:

Labour and Working Conditions

- Forced or trafficked labour in contractors' and subcontractors' workforce.
- Child/minor labour.
- Condition of employment and work.
- Discrimination in hiring and contractual terms.
- Freedom of association and collective bargaining.
- Workers' health and safety.
- Workers' camp conditions.



Community Well-being

- Community health and safety.
- Access to natural resources for health, cultural needs and livelihood.
- Land acquisition and involuntary resettlement with/without economic displacement.
- Indigenous peoples.
- In-migration.

Supply Chain

- Contractor/supplier performance related to labour and working conditions, community well-being and security.

Responsible Security

- Use of force and conduct of third-party security.
- Human rights training for staff and third-party security.

What is our position?

Our Commitment

PETRONAS is committed to respecting human rights in areas of our operations, complying with its Code of Conduct and Business Ethics (CoBE) and all relevant legal requirements. Our responsibility is to uphold CoBE and ensure we comply with human rights principles and laws, embedding industry best practices throughout PETRONAS' Social Performance standards and guidelines, aligned with the United Nations Guiding Principles on Business and Human Rights (UNGPs). We apply integrated controls throughout PETRONAS' systems and processes including areas of risk management, procurement and supply chain, HSE, human resource management, business operations, legal and security.

Positive Social Impact

We are guided by the following standards, policies and guidelines:



Our human rights commitment applies to all employees of the Group of Companies, contractors, sub-contractors and any third parties within PETRONAS' premises or performing work and/or business for and on behalf of PETRONAS, in line with the PETRONAS Contractors' Code of Conduct on Human Rights (CoCHR).

Our Due Diligence

In ensuring we minimise risks to the communities where we operate, we are governed by our due diligence technical standards and guidelines pertaining to human rights: social risk assessment, human rights due diligence, indigenous peoples assessment, cultural heritage assessment, land acquisitions and involuntary resettlement, as well as grievance mechanism. These due diligence programmes are led by our Social Performance technical practitioners where potential human rights are identified, mitigated, tracked and monitored. Social Risk assessments are conducted periodically in accordance to project phases, during operational, decommissioning, as well as when there are significant changes in activities which may result in impact to community well-being, supply chain, security and labour and working conditions. Human Rights Due Diligence is also conducted for potential mergers and acquisitions.

Human rights is also fundamental to a just energy transition. The concept of Just Transition is to ensure that as we decarbonise, we also create social value and ensure progress for society that will offer better prospects for more people, with the notion of leaving no one behind. As part of Just Transition in realising our NZCE 2050 aspiration, the year 2021 saw PETRONAS strengthening our governance on our internal processes to establish Labour and Working Conditions (LWC) baseline by evaluating our compliance with labour and working conditions laws as an integral part of fulfilling our sustainability objectives.

Our work in advocating human rights in supply chain continues as per our reporting on page 203.

With our operations located in many countries around the world, local socio-political challenges can create complexity in managing human rights risks. Despite some challenges, PETRONAS strives to uphold our commitment to respect human rights and the UNGPs in compliance with CoBE and all other applicable requirements where we operate. More information on our efforts in building a sustainable energy

future in South Sudan is available in the Sustainability section of the PETRONAS FLOW magazine, in the September and December 2021 issues. The information is also featured on our corporate website.

As part of our ongoing efforts to reshape our portfolio and redeploy capital to our identified areas of growth, we have finalised our divestment in Myanmar. This was achieved after we conducted a social risk assessment and human rights due diligence for our operations there and also other sites. We have addressed matters identified from the assessment and due diligence by strengthening our engagements with key stakeholders as well as formalising a grievance management process. Good practices from other operations in Malaysia and Canada on engagements with communities with regards to human rights and consistent monitoring of gap closure plans, have been shared with other operations for mutual benefit.

Access to Remedy

PETRONAS provides access to remedy through its grievance mechanism (GM). It plays a critical role in opening channels for dialogue, problem-solving, investigation and providing a remedy where required. GM enables workers and other rights-holders to raise complaints freely, obtain effective and transparent solutions, and the pre-emptive action needed to avoid recurrence. Employees can submit grievances through their trade union representative, line manager and Human Resources representative for employment conditions complaints.

PETRONAS contractors must establish their own GM to address their workers' grievances. For example, in some of our operations, such as offshore platforms, chemical plants, and project sites under construction, we have designated personnel that manage HSE and social grievances by employees and contractors. There are also community liaison officers to address grievances from communities.

Our GM system allows us to monitor the number and type of formal individual or collective appeals received periodically. This helps us better understand the types of issues being raised, the effectiveness of our GM and methods to resolve issues that have been raised. The grievance data allows us to monitor salient problems and address root causes to prevent further grievances from being raised.

Positive Social Impact

What did we do in 2021?

Strengthened Engagements

- Continued to engage with officials from the Legal Affairs Division of the Prime Minister's Department and the Human Rights Commission of Malaysia (SUHAKAM).
- Shaped PETRONAS' leadership in business and human rights by participating in the National Business and Human Rights Forum as a speaker.
- Continued to engage with the Business Council for Sustainable Development (BCSD) Malaysia, participating in forums and discussions related to human rights.

Assessments

- Assessments of internal processes were conducted to establish a Labour and Working baseline based on the nine LWC Principles: freedom of labour, child labour, wages and benefits, working hours, grievance mechanism, non-discrimination, freedom of association, humane treatment, as well as foreign and migrant workers.

The assessments of internal processes were conducted to our operations based on Labour and Working Condition Principles which has been mapped with legal requirements

Principles	Freedom of Labour	Child Labour	Wages & Benefits	Working Hours	Grievance Mechanism	Non-discrimination	Freedom of Association	Humane Treatment	Foreign & Migrant Workers
Downstream	✓	✓	✓	✓	✓	✓	✓	✓	✓
Upstream	✓	✓	✓	✓	✓	✓	✓	✓	✓
PD&T	✓	✓	✓	✓	✓	✓	✓	✓	✓
Gas + New Energy	✓	✓	✓	✓	✓	✓	✓	✓	✓
KLCCH	✓	✓	✓	✓	✓	✓	✓	✓	✓
MISC	✓	✓	✓	✓	✓	✓	✓	✓	✓

Indicator	Remarks
Comply to the requirements	✓

Capability Enhancements

- Expanded pool of Social Performance practitioners to address human rights risks at Group, Business, and operational levels.
- Enhanced capability development on human rights management in LWC by conducting Technical Exchange sessions on Forced Labour and Masterclass sessions on Living Wage.
- Conducted a Technical Exchange on the National Action Plan on Forced Labour with the Ministry of Human Resources and SUHAKAM, rated effective by all participants.

Grievance Management

- Grievance mechanism module for employees:
 - 1,440 employees** completed Grievance Mechanism e-learning module.
 - 353** Grievance Focal, Community Liaison officers who have been upskilled via GM training and GM online system workshops.

Positive Social Impact

What did we achieve?

Strengthened Engagements

- Over 9,000** PETRONAS non-executive employees were covered by collective bargaining agreements. PETRONAS' collective bargaining agreements typically are for three years, with the latest renewed in 2021.
- More than **500 employees** attended the Technical Exchange session on Forced Labour and Masterclass session on Living Wage.

Assessments

- The assessment on our internal processes indicated no significant gaps in complying with requirements. We will continue to focus on capacity and awareness building, and engagements on labour and working conditions.

The assessment results show that PETRONAS' internal processes comply with the Labour and Working Conditions (LWC) legal requirements where we operate

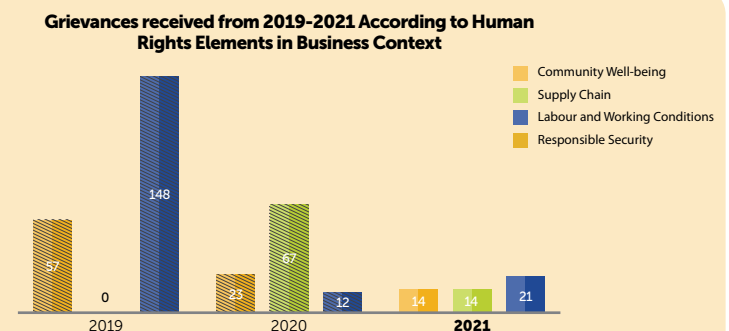


Capability Enhancements

- 68 per cent** of permanent employees completed the Human Rights Management e-learning module resulting in growing awareness on human rights management.
- 10 human rights training sessions were conducted for **1,415** (82 per cent) Auxiliary Police in 2021 resulting in upskilled security personnel in human rights legislation.

Grievance Management

- Received **49** grievances in 2021:
 - 21** grievances related to supply chain
 - 14** grievances on LWC
 - 14** grievances on community well-being.
- 98 per cent** of all grievances received were addressed accordingly, while lessons learnt from the issues raised have been identified to prevent future recurrence.



Positive Social Impact

Supply Chain Management



Why is it important?

As a large organisation that relies on various products and services from external parties, it is essential to build supply chain resiliency. We ensure business continuity by managing our supply chain effectively, efficiently, and sustainably. This includes looking into the lifecycle of our products, protecting workers' rights throughout the supply chain, and ensuring the safety of our products and solutions to stakeholders. We do this because potential disruptions could impede operational efficiency, business continuity, financial performance and overall growth. To this end, our procurement practices are responsible, fair, ethical and transparent.

Given our long-standing experience in the oil and gas industry, we continuously collaborate with relevant industry players to drive socio-economic growth through our supply chain. Through our Vendor Development Programme (VDP), we promote the development of the Oil & Gas Services and Equipment (OGSE) industry, as well as Small and Medium Enterprises (SMEs), to build strong relationships and create more local entrepreneurs. Over the longer term, this creates a ripple effect in the communities around us as this maximises economic growth, creates more employment opportunities and improves their livelihoods.

What is our position?

Our approach to contractor management is taken from the Labour and Working Conditions (LWC) lens, and is part of the company's overall effort to address adherence to health, safety and environment (HSE) standards. Under the PETRONAS Contractors Code of Conduct on Human Rights (CoCHR), we require our contractors to respect internationally-recognised human rights and comply with PETRONAS Code of Conduct and Business Ethics (CoBE). PETRONAS expects our contractors and suppliers to adhere to LWC principles which are freedom of labour, prevention of child labour, wages and benefits, working hours, establish grievance mechanism, non-discrimination, freedom of association, humane treatment and foreign and migrant workers.

Our procurement system is supported by digital and analytic insights to deliver value to our stakeholders, thus shaping a resilient and ethical supply chain ecosystem. It is guided by the PETRONAS Procurement Standard, PETRONAS Anti-Bribery and Corruption Manual, and the PETRONAS Code of Conduct and Business Ethics (CoBE), ensuring our suppliers and contractors fulfil the requirements throughout the procurement process. Our supply sources are from various geographical locations. We aim to responsibly manage our supply chain by strengthening our digital solutions and continuously streamlining our procurement systems to create a more resilient supply chain ecosystem.

To improve our business practices, enhance productivity and optimise operations, we conduct capacity building and engagement initiatives for our suppliers and contractors. This is also in line with our high integrity standards as we have zero tolerance for malpractices and non-compliances. We also manage grievances via an integrated platform to monitor and manage cases. Meanwhile, in terms of product sustainability, we have established several initiatives to reduce our environmental footprint across our value chain as part of our net zero carbon emissions by 2050 (NZCE 2050) aspiration.

Positive Social Impact

What did we do in 2021?

Digital Procurement

- Implemented a cloud-based procurement integrated platform, covering Procure-to-Pay processes across PETRONAS' businesses.
- Established the Procurement Marketplace for low-value, high-volume material purchases.
- Infused analytics across our inventory management processes through Equipment Reliability-Based Stocking, leveraging on materials management and plant maintenance data.
- Improved surplus visibility across Petroleum Arrangement Contractors (PACs) through Surplus Marketplace.
- Conducted further improvements to the PETRONAS Licensing Management System (PLMS) to continuously enhance user experience.

Sustainable Supply Chain

- Addressed gaps in human rights risk management within the supply chain, which include a lack of understanding of human rights and formalised grievance management to address grievances of their contractors and suppliers.
- From 2018 to 2021, PETRONAS conducted the PETRONAS Contractors Code of Conduct on Human Rights (CoCHR) Self-Assessments with more than 6,000 registered contractors, out of which 4,600 are active contractors. 83 companies with more than 20,000 employees underwent the CoCHR Compliance Assessment.
- In 2021, 156 out of 298 contractors responded to the CoCHR Online Self-Assessment. We conducted dialogues with 22 identified contractors with elevated human rights risks.

About the Compliance Assessment



Selection criteria:

- Value of Contract awarded (>RM1 million).
- High risk activity (high HSE risks, involvement of subcontractors).
- Services rendered in remote locations.
- Foreign and migrant workers participation in business.

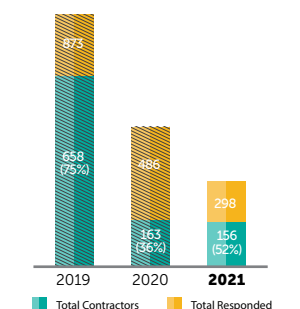
CoCHR Online Self-Assessment (active contracts)

- Online surveys were disseminated via collaboration with Licensing and Registration.
- Participation is voluntary, 977 out of 1,657 contractors responded.
- Based on the response received, some contractors were contacted for compliance assessment.

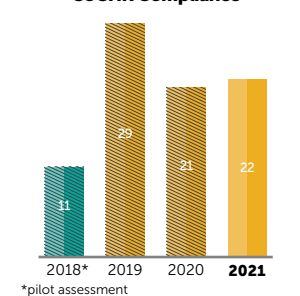
CoCHR Compliance Assessment (on-site: 2018-2019 and virtual: 2020-2021)

- 83 companies with more than 20,000 total workforce assessed.
- Assessments included:
 - Site walkabout (before the pandemic)
 - Interview with key personnel
 - Documents review

Participation Rate of CoCHR Online Self-Assessment



Contractors Assessed on CoCHR Compliance



*pilot assessment

Ensuring Product Safety

- Improved raw material compliance management.
- Successfully expanded the Raw Material Information Request (RAWMIR) programme due diligence on conflict minerals groupwide in ensuring comprehensive raw materials HSE information being obtained from suppliers.

Positive Social Impact



Shaping Homegrown OGSE Players

- Contributed to national strategic initiatives by partnering with government agencies through various programmes:
 - JanaNiaga (JN) National Supply Chain Financing (NSCF) initiative, in collaboration with the Ministry of Finance and Export-Import Bank of Malaysia Berhad (EXIM Bank), to help alleviate issues related to cash flow.
 - Malaysia Short-term Employment Programme (MySTEP), in collaboration with the Ministry of Finance, Ministry of Entrepreneur Development and Cooperatives and Social Security Organisation (SOCISO) to drive apprentices and create more employment opportunities within the oil and gas industry.
- Coached 32 vendors via the Road to Bursa initiative to improve corporate governance standards and professionalism.
- Strategically collaborated with various industry players to assist vendors' capabilities and growth via several programmes, such as:
 - Sustaining Malaysia OGSE Circle (SMOC) to increase access to government funding and technical support.
 - Embracing New Energy (EMNE) Webinar Series, in collaboration with Sustainable Energy Development Authority (SEDA), government agencies and financial institutions (such as MIDF, CIMB, HSBC Bank Malaysia Berhad and Bank Muamalat).
 - Going Global Programme, in collaboration with the Ministry of External Trade Development Corporation (MATRADE).

What did we achieve?

Future-proof Digital Ecosystem

- Enabled three times shorter material ordering time through implementation of Procurement Marketplace.
- Optimised inventory level to less than one per cent leading to reduced working capital and non-moving stocks.
- Doubled the surplus utilisation rate across Petroleum Arrangement Contracts (PACs), generating more than RM500 million in value.

Sustainable Supply Chain

- Identified improvements in supply chain grievance management over the past two years (2019-2021) by guiding the contractors to comply with the nine Human Rights Principles outlined in the CoCHR, including freedom of labour and prevention of child labour.
- RM1.37 billion funds/loans approved to 243 applications under the Vendor Financing Programme since its inception in 2018.

Positive Social Impact

Product Stewardship

Why is it important?

Product Stewardship is an essential component at PETRONAS. It ensures we meet the demands for the delivery of safe, compliant, sustainable and innovative products and solutions that address market needs and industry trends. It is embedded under our research and development (R&D) and aligns with the United Nations Sustainable Development Goals (SDGs). We do this because we believe that it is our responsibility to ensure the highest health and safety standards are adhered to throughout our operations, public health is protected, and at the same time, business continuity is maintained. By adopting a Life Cycle Thinking approach during product development, we are able to create products and solutions that minimise our impact on the environment. Additionally, our listed subsidiary companies can provide greater disclosures for the Dow Jones Sustainability Index (DJSI) and FTSE4Good on all environmental impact categories required for products.



What is our position?

Comprehensive product stewardship assessments, namely, Raw Material Management, Life Cycle Assessment (LCA) and Product Safety Assessment are carried out to ensure that future product risks are adequately managed. We also constantly monitor our impact on the environment, ensure our packaging remains within regulatory boundaries, and communicate information on product hazards and risk management measures to stakeholders via our Product Safety Data Sheets (SDSs). We also leverage emerging technologies and innovation as this allows us to penetrate new markets, build customer loyalty and strengthen our position as a reputable solutions partner.

Our product safety assessments are carried out in line with the requirements of the PETRONAS Technology Management System (PTMS) and Strategic Approach to International Chemicals Management (SAICM), and Responsible Care Initiative. We are also guided by the Raw Material Information Request (RAWMIR) standards. This helps us identify the Substances of Very High Concern (SVHC) in our products and alleviate the use of Conflict Minerals. Additionally, data and information are also proactively shared with relevant stakeholders, as required by the Globally Harmonised System of Classification and Labelling of Chemicals. Meanwhile, LCAs are conducted according to international standards and best practices.

Positive Social Impact

What did we do in 2021?

Product Safety

- Completed product stewardship assessments, including the application-specific product safety tests, for all applicable product R&D projects.
- Appointed and trained product stewardship focal points for each research cluster.
- Obtained approval to establish an in-house toxicology laboratory to facilitate in-vitro ecotoxicity testing to support R&D activities.

What did we achieve?

Product Safety

- **6 PETRONAS ETRO** base oils series were successfully registered with NSF, under the H1 and HX-1 categories, which are lubricants and lubricant components respectively certified for incidental food contact.
- Assessed **MG3DF** and **MG3DF75**, which are synthetic base oils, for acute dermal irritation/corrosion hazard classification, through the Organisation for Economic Co-operation and Development (OECD) Test Guideline No 404 for Testing of Chemicals, improving the products' hazard classification. The results were used for the read-across assessment of **MG3DF90**.

Raw Material Management

- Conducted Raw Material Information Request (RAWMIR) assessments on selected PETRONAS Chemicals Group Berhad's (PCG) OPUs and oil field and production chemicals for domestic upstream assets.
- Introduction of new process to determine post consumer recyclable in packaging, Substances of Very High Concern (SVHC) in raw materials, and renewable sources from selected vendors.

Raw Material Management

- **7 Substances of Very High Concern** (SVHC) were identified via the RAWMIR initiative with plans to phase out/substitute these substances.
- Completed conflict mineral due diligence for 400 raw materials among more than 250 vendors with no use of conflict minerals in PETRONAS raw material supply chain identified.

Life Cycle Assessment

- Life Cycle Assessment (LCA) is a prominent method used for determining the environmental impacts occurring across the entire value chain of a product. In PETRONAS, LCA's are conducted adopting all the necessary standards (ISO 14040/44) and international best practices to support businesses address customer requests, augment marketability of products and enhance brand value. A total of 37 product LCAs were conducted this year supporting Upstream, Gas + New Energy and Downstream businesses.

Life Cycle Assessment

- Conducted a Life Cycle Assessment to help position **Hydrogen** from PC Ethylene as a low-carbon product and improve marketability. This was also externally verified by DNV.
- **5 Carbon Neutral LNG cargoes** successfully delivered to customers.

Positive Social Impact

Employee Welfare and Fair Remuneration

Why is it important?

We are committed to ensure fair employment, fair remuneration, and diversity best practices are carried out throughout our company and supply chain. We also provide our workforce with a competitive remuneration to attract and retain a quality talent pool. At the same time, we also look after their overall health and overall well-being as this helps ensure a healthy and productive workforce.

We also take pride in promoting a diverse and inclusive workforce, as this allows us to harness various skills and valuable experiences that promote an innovative culture and positively impact business growth. That is why it is important that we cultivate the right environment that allows them to thrive and at the same time, achieve their true potential.

What is our position?

At PETRONAS, we strive to nurture an inclusive workplace that values equal opportunities, diversity, talent, and overall employee well-being, and operate with a strong foundation of merit and equality, and our remuneration structure is anchored on a pay-for-job principle, irrespective of gender, age, nationality, ethnicity, or religion. We adopt differentiation in our total rewards strategy in creating the right environment that drives our diverse and changing workforce towards a high-performance culture.

We have established the PETRONAS Diversity and Inclusion (D&I) Council that oversees our efforts in four identified key areas, namely culture, multinationals, gender, and age; and a Wellness Steering Committee that oversees our efforts in safeguarding employees' mental well-being.

PETRONAS' D&I Focus Areas of Culture, Multinationals, Gender and Age



Differences in perspectives are respected and valued

Creating an environment where people feel safe and confident to speak up and put differing views across, to foster creativity and innovation.



Representation by diverse nationalities in leadership roles

Building and having qualified local nationals to fill the majority of decision-making positions in every country we operate in and having readily available local talents to take up leadership roles globally.



Women in senior leadership roles

Providing opportunities for representation by women in senior leadership positions. PETRONAS aims to establish a pervasive culture where women can thrive and progress with the Group, as we build a strong talent pool of qualified women.



Space for idea generation from young talent is enabled

Creating an innovative organisation where young talents feel involved, respected and connected, as well as inspired to contribute new ideas while encouraged to constantly explore new ways of doing things.

Positive Social Impact

What did we do in 2021?

Employee Benefits

- In addition to existing benefits covering Health and Well-Being, Time-Off and Special Paid Leave, Life Insurance coverage, and others in 2021, we provided:
 - Enhanced mental illness treatment provision that allow mental illness related treatment beyond two years.
 - FlexWear implementation that allows smart casual attire at office or work location.
 - COVID-19 immunisation benefits that provide special paid leave for vaccination, booster shot, and accompanying dependent children obtaining vaccination, as well as travel reimbursement.
 - Support employees' well-being with a Digital Employee Assistance Programme (EAP 2.0) for preventive mental health management, and i-C4RE for mental resilience development.
 - Provide financial and connectivity assistance allowance during remote working.
 - Benefits for Employees with Special Needs Children.

Employee Welfare

- MIND-A-CARE training programme was established by Group HSE, in collaboration with INSTEP, and Malaysian Psychiatric Association (MPA).
 - This mental health training programme aims to train PETRONAS employees to be certified MIND-A-CARE Ambassadors and equip them with the skills necessary to assist or refer affected colleagues for professional assistance through the company's Employee Assistance Programme (myFriends).
 - PETRONAS targets to train 1,000 MIND-A-CARE Ambassadors in the next three years.
- Established the first comprehensive Psychosocial Risk Assessment (PsyRA) tools to assess **Psychological Safety at Work**.
- Continued to create a wholesome employee relations experience for different talent segments via active participations in existing internal bodies within PETRONAS, such as PETRONAS Young Professionals Club, Association of Wives and Women Employees of PETRONAS (PETRONITA) and PETRONAS Sports & Recreation Club (KSRP).

- Introduced i-C4RE (Individualised Coaching for Resilience Enhancement), an interactive online programme that offers individualised coaching to enhance mental health resilience of employees. The e-learning course is designed to equip participants with mindsets and skills to:
 - Cope and thrive when faced with challenges or adversities.
 - Recover from failures and setbacks.
 - Manage their resilience and mental health.

Diversity and Inclusion

- A signatory to World Economic Forum's Stakeholder Capitalism Metrics.
- A member of the World Business Council for Sustainable Development (WBCSD) Business Commission to Tackle Inequality.
- Guest speaker at the Women's Global Leadership Conference in Energy 2021.
- Participated in 30 per cent Club talk during the International Women's Day **Men-Who-Pause**.
- Incorporated D&I as part of the long-term incentive plan (LTIP) for Top Management for 2022.
- Improved talent composition, with more employees consisting of different nationalities.
- Improved Senior Management composition in terms of gender and nationality.
- D&I Council 2021 met five times throughout the year to solidify the approach and improve D&I immersion.
- Conducted Brown Bag internal communications series on D&I to improve awareness and importance of D&I.
- Conducted various activities through PETRONAS Leading Women Network (PLWN), including:
 - Championed unconscious bias awareness, launched the **Bias Disruptors** Communication Campaign, and hosted quarterly inclusive talks with senior leaders and D&I advocates (male and female role models).
 - Commissioned PLWN D&I survey to address gender diversity.
 - Advocated industry-wide partnerships on gender diversity and inclusion.
 - Led and supported Malaysia's Women in Energy (MyWIE).
 - Collaborated with other oil and gas companies to support the industry (Baker Hughes Sustainability session, Malaysian Gas Association Women in Energy Transition).

Positive Social Impact

What did we achieve?

Employee Benefits

- Female employees **28 per cent** and male employees **72 per cent** who meet the stipulated eligibility criteria are entitled to parental leave.
- In 2021 a total of **2,179 employees** took parental leave:
 - Maternity leave: **90 consecutive days**
 - Paternity leave: **5 working days**.
- **96 per cent** of those who took parental leave, both male and female, returned to work.

Diversity and Inclusion

- Improved talent composition:
 - **28 per cent** female
 - **More than 100** different nationalities
 - **41 per cent** aged **35** and below.
- Improved Senior Management (VP and above) composition which currently consists of **26 per cent** female and **74 per cent** male.
- Won the **LinkedIn Talent Award** – Diversity Champion (1,000 employee category).
- Elevated PETRONAS' reputation as a D&I advocate in the global energy arena through participation in various global forums.

Employee Welfare

- **900 employees** reached out to myFriends, which includes **811** digital coaching, **533** careline calls, and **246** counselling sessions for both work and non-work related issues.
- **1,856 employees** were briefed virtually on MIND-A-CARE to create awareness on mental health first aid.
 - Handbooks, pocket guides and self-reading awareness materials were made available through the myFriends page and accessible for all employees.
 - Successfully produced 19 certified MIND-A-CARE trainers in November 2021.

- **840 participants** have enrolled in the i-C4RE programme (Individualised Coaching 4 Resilience Enhancement) through seven cohorts in 2021.
 - Overall, **74 per cent** of participants who completed the training modules showed improved resilience scores, and **25 per cent** of all participants demonstrated higher resilience scores.
- The holistic mental health and well-being signature programmes by PETRONAS have contributed to:
 - **70 per cent** improvement in Depression, Anxiety and Stress Scores
 - **50 per cent** improvement in body mass index (BMI) scores
 - **1,409 employees** participated in the Digital Healthy Lifestyle Coaching (DHLC), which exceeded our initial target of 1,000 participants.



Positive Social Impact

Talent and Education

Why is it important?

People are our greatest assets and investing in human capital development at all levels will enable a continuous and sustainable pipeline of a high-performing and skilled workforce. With the energy industry constantly evolving against a backdrop of ongoing uncertainty, our long-term growth and sustainability depend on our ability to innovate, be agile, and adapt to the changing business environment.

This is why it is important that we constantly retool our human capital by providing the right environment, opportunities, and experiences to encourage new skills, knowledge, and driven employees. Our aim is to enable our people with the right capabilities and tools to always thrive on the job and are future-ready to achieve their potential over the long term.

What is our position?

We focus our efforts on attracting, developing, deploying and retaining the best talents to deliver on the job and prepare them to steer future progress that meet stakeholders’ expectations in an ever-changing business landscape. Our efforts are focused on five key areas that are also designed to contribute to a just energy transition:

Upskilling and Reskilling Existing Talents

We focus on upskilling and reskilling our people to deliver on our business strategies in the new energy landscape. This means heavily investing in our people to become a highly-skilled, innovative and agile workforce. We have been making progress over the years to enhance our capability development programmes in upskilling and reskilling our talents in critical areas, such as leadership, innovation and core skills.

Enhancing Our Employee Value Proposition to Attract and Retain the Best Talents

We continuously enhance our performance management in alignment with our strategic outcomes, focusing on performance and development, such as coaching talents to unlock their full potential. Our ongoing Human Capital transformation aims to redefine our talent experience towards an empowered, agile and enabled workforce. This transformation focuses on People (behaviour and mindset shift), Processes (simplified and principle-based), and Platforms (through analytics and artificial intelligence).

Agile Leadership

We continue to evolve our leadership styles to better respond to the ever-evolving environment and industry volatility. Key efforts include upskilling the leadership teams and employees with Agile methodology, promoting Agile practice in the right way and increasing Agile awareness across the organisation.

Innovation Engine

We are building a culture of innovation to drive new growth opportunities and generate new revenue potential by using a **think big, test small** experimental approach. This method will enable our people the tools and support to approach innovation through the customer lens, solutions, and business validation allowing them to explore non-traditional business areas and de-risk premature investments.

Creating and Maintaining the Right Environment for Our People to Thrive

Part of creating and maintaining the right environment is by embracing Diversity and Inclusion (D&I), which is vital for us to unlock or leverage the diverse strength of our talents. We continue to offer a wholesome employee relations experience for different segments of talents through various internal associations and bodies. The right environment would not be complete without the right organisational culture; hence continuous efforts were made to ensure the internalisation of the refreshed PETRONAS Cultural Beliefs (PCB) and its alignment to our organisation's objectives.

Positive Social Impact

While developing our internal talent capabilities, we continuously invest in developing future talents to meet our business and the industry's energy requirements. In driving Malaysia's energy sector, we invest in three key areas of education:



What did we do in 2021?

Talent	Education
<ul style="list-style-type: none">Invested in learning and development to build capabilities in leadership, innovation, and core skills to become a highly skilled, high-performing, innovative, and agile workforce.Enhanced our Employee Value Proposition to attract new and retain the best talents by strengthening our performance management in linking to business objectives with a focus on performance and development including coaching to ensure talents achieve their full potential.Reviewed and simplified our processes to be principle-based.Launched a new digital learning platform, myLearningX that offers personalisation and flexible learning options that allow talents to self-drive their own learning as and when they need to build their capabilities.Continued to maintain the right environment for our people to thrive through:<ul style="list-style-type: none">Groupwide engagements to further inculcate internal cultural beliefsA more prominent agenda on Diversity & Inclusion.A core team was set up to promote the adoption of Agile tools and ensure more pervasive agile ways of working in the organisation.Commenced the pilot journey for Innovation Engine with the aim of building a sustainable innovation culture that enables the creation of new opportunities and revenue streams at pace across the organisation.	<ul style="list-style-type: none">Continued to sponsor students’ tertiary education via PETRONAS Education Sponsorship Programme (PESP) amounting to more than RM163 million.Sponsored deserving students to study at Universiti Teknologi PETRONAS (UTP) under the Tabung Amanah Zakat UTP (TAZU) amounting to RM3.9 million.Continued to provide both industrial and technical trainings such as Graduate Employability Enhancement Scheme (GEES), Vocational Institution Sponsorship & Training Assistance (VISTA) and internship placements.Continued to promote awareness and interest in Science, Technology, Engineering, and Mathematics (STEM) via Petrosains outlets and the Discover PETRONAS @ School (DPS) programme.Contributed to the construction of two MARA Junior Science Colleges (MRSM) in Sabah and Sarawak, in collaboration with state governments and Majlis Amanah Rakyat (MARA) to promote STEM among students.Continued to offer learning opportunities to young talents in technical areas such as Nautical Studies and Marine Engineering at <i>Akademi Laut Malaysia</i> (ALAM), MISC, and Technical Energy Enrichment (TEP) at PETRONAS Petroleum Technology Institute (INSTEP).

Positive Social Impact

What did we achieve?

Talent

- More than **150 Top Leaders** were equipped to lead and navigate the business and the workforce towards achieving organisational goals anchored on PCB and Shared Values through several key programmes such as **Board Excellence, Ascend, and CEO 100 Days**.
- Top Leaders were also consistently engaged via **Top Leaders Dialogue sessions**, a platform to converse key enterprise topics while shaping the organisational culture.
- More than **300 Managers, Senior Managers, and General Managers attended key in-role leadership programmes** to ensure sustainable bench strength for succession.
- A pool of talents has been **upskilled to become catalysts for continuous improvement (CI), innovation, and Agile methodology** in the organisation to maximise operational cashflow and improve efficiency as well as to ideate, incubate, and scale new ideas and deliver customer-focused solutions at pace.
- **myLearningX** platform:
 - More than **40,000** learners
 - nearly **1 million** accumulated interactions
 - nearly **400,000** learning hours completed
 - **4.2/5** average rating of learning platform by learners.
- Digital Academy was launched to upskill digital capabilities that includes Citizen Analytics and Digital Mastery. To date, **7,700 talents have been upskilled**.
- The Agile Coaching Enablement Programme was launched to build a pipeline of Agile practitioners to support Agile teams across PETRONAS.
- Commenced activities to codify Agile practices to ease and streamline Agile adoption.
- **Agile Leadership topics** were discussed at both internal and external thought leadership programmes, for example Top Leaders Dialogue, Brownbag series, PETRONAS FutureTalks 2021, IFTDO India etc.
- **Innovation Masterclass programme** commenced to upskill talents selected for the Innovation Engine pilot. The programme facilitated the ideation process which resulted in several bold ideas being selected for incubation to unlock the potential value of each idea. The programme will continue as a permanent fixture to rally more innovative ideas that could bring potential value to the organisation.
- Established the foundation to uplift innovation capabilities and create an ecosystem of innovators. Talents with various backgrounds and skills across PETRONAS, including **65 per cent** of PETRONAS' top leaders have been immersed with innovation methodologies through hands-on exposure.
- Successfully matured **3 growth opportunities** into new business ventures namely Circular Economy, Advanced Material, and Carbon Capture and Storage.

Education

- **302** individuals were sponsored under PESP.
- **1,462** deserving UTP students benefitted from the sponsorship by TAZU.
- **3,111** individuals benefitted from various programmes such as GEES, VISTA, and internship.
- Received **128,000** visitors at Petrosains outlets nationwide and **4,161** participants at Discover PETRONAS @ School (DPS).
- **325** students enrolled in Diploma in Nautical Studies and Diploma in Marine Engineering at ALAM, MISC and **35** enrolments in Technical Energy Enrichment Programme (TEP) at INSTEP.

Positive Social Impact

Community Engagement



Why is it important?

We are firm advocates for community empowerment, as we believe that the long-term success of our business is contingent on the support of the communities we serve. As a nation-building organisation, community development is essential to driving the nation forward and ensuring shared prosperity. Strong community engagement allows us to better understand and address issues faced by our communities. Therefore, we continue to drive and advance our community engagement programmes as it does not only make a difference in the lives of the people, but also deepens the trust levels. We focus on enriching lives and improving their quality and socio-economic outcomes as it allows us to unlock their potential and enable them to earn and help stimulate economic recovery. Our employees are also encouraged to take part in these initiatives as it gives them a sense of purpose and fulfilment.

Positive Social Impact

What is our position?

Our work with communities focuses on deepening relationships, building trust and enhancing our reputation as a caring corporate citizen. While the business divisions and other companies within the Group have their own community engagement programmes, a large part of the PETRONAS' Corporate Social Responsibility (CSR) programmes are driven by Yayasan PETRONAS (the Foundation), with the mission to deliver sustainable impact, improve the quality of life and socio-economic outcomes for communities throughout Malaysia based on three key pillars – Education, Community Well-being and Environment.



Yayasan PETRONAS is guided by the Constitution to manage and administer funds donated and ensure the funds are spent to further its objectives.

From educational programmes, employment, including food and care packages to providing necessary infrastructure, efforts were centred on transforming communities and improve their overall well-being. The Foundation also provided COVID-19 relief efforts for those in the B40 (bottom 40 per cent of the Malaysian household income) families and those affected by natural disasters with sustainable programmes. As result of our relentless groupwide efforts, we reached out to over 175,500 beneficiaries (inclusive of individuals, institutions, households, communities), investing up to RM62.4 million across all key programmes, including COVID-19 and flood relief efforts.



Positive Social Impact

What did we do in 2021?

Education

- Yayasan PETRONAS, in collaboration with the Ministry of Education, ramped up the implementation of *Program Duta Guru* (PDG), a nine-year programme to sustainably raise students' Higher Order Thinking Skills (HOTS) and interest and competency in Science, Technology, Engineering and Mathematics (STEM), by empowering 4,500 STEM teachers across Malaysia. Through PDG, Yayasan PETRONAS aims to develop 4,500 highly competent STEM teachers by 2028, impacting approximately 3.96 million students.
- In response to COVID-related school closures, Yayasan PETRONAS contributed 12,000 iPads equipped with one-year of data connectivity worth over RM30 million to marginalised students in 82 schools across Malaysia, as part of the nation's CERDIK initiative. The contribution aims to enable students to access online learning during school closures and future digital learning experiences when schools reopen.
- Continued to support efforts to raise student enrollment and participation in schools through the Back To School Programme that provided 21,000 underprivileged students with essential school supplies, thereby lessening the financial burden of B40 parents.
- Continued to support underperforming B40 SPM (the Malaysian Certificate of Education, a national examination taken by all fifth-form secondary school students in Malaysia) students in Kedah to improve their academic performance and assist in tertiary education progression through the empowerNCER Academic programme, in partnership with the Northern Corridor Implementation Authority (NCIA). In 2021, 750 participants sat for SPM 2020 while an additional 1,000 participants were onboarded to the programme in preparation for SPM 2021.



Community Well-being and Development

- Yayasan PETRONAS continues supporting B40 communities through its flagship *Memampankan Ekonomi Asas Rakyat* (MEKAR) programme, together with its strategic and implementation partners, with the aim to increase the income level of more than 2,000 B40 communities across 12 districts in five states.
- MEKAR Phase 2 programmes in NCER and ECER focus on skills and entrepreneurship development benefiting more than 1,900 participants, while MEKAR Phase 3 (Go-to-Market) in Kuala Nerus, Terengganu and Kapar, Selangor, focus in business acceleration to enhance the skills of its 105 participants and help them gain market access. Yayasan PETRONAS is also committed to continue its support for seven districts in Kedah and Perak, benefiting 1,400 beneficiaries through partnership with NCIA.

Positive Social Impact

- Apart from Skills and Entrepreneurship Development Programme, MEKAR Phase 1 focuses on the provision of basic needs such as water and electricity, that reflects in the two initiatives in Pitas, Sabah, and Kluang, Johor to ensure sustainable supply of clean water and electricity respectively benefiting about 1,000 members of the community in six villages.
- Yayasan PETRONAS also continues its support for cancer research for the Asian population and paediatric patients, by funding Cancer Research of Malaysia (CRM) and Hospital Canselor Tuanku Mukhriz (HCTM). These grants will drive new research to address cancer more effectively, from prevention to detection and treatment.
- Yayasan PETRONAS has committed to improve the health and livelihood of the vulnerable members of B40 communities with health issues, including AIDS, Thalassemia and Paediatric complications through the support of MyLady and SHAPE Programme with Malaysia AIDS Foundation (MAF).

Environmental Awareness



- Supported environmental conservation via the PETRONAS Walk4Trees Challenge by planting trees at 14 sites across 11 states nationwide.
- We also supported biodiversity conservation and carbon-neutral programmes, such as rainforest conservation in Imbak Canyon, Sabah; marine biodiversity restoration in the Biodiversity, Environment and Conservation (BEACON) project in Sarawak; mangrove conservation and rehabilitation under PETRONAS Chemicals Group Berhad (PCG)'s ecoCare which has planted more than 20,000 mangrove trees across 14,000 square metres.



Positive Social Impact

Our Achievements

Education

750

SPM 2020 students supported through the empowerNCER Academic Programme.



- * 99.5 per cent passed SPM 2020 with 7.9 per cent achieving 5As or more.
- * 100 per cent of 5A students and 67.8 per cent of students that obtained 4As and below, secured placement in tertiary institutions.



21,000

primary schools from low-income households were provided with personal hygiene kits and schools supplies under the Back To School Programme.



292 active participants and 160 School Improvement Specialist Coaches (SISC+) from 142 districts as *Pembimbing Program Duta Guru* (PPDG) reached through PDG.



- * 92 per cent programme retention rate for Cohort 1, with Cohort 2 achieving over 96 per cent.
- * 9/10 average participant satisfaction scores across 2021.
- * 98 per cent of *Pembimbing Duta Guru* recognised positive developments highlighted among PDG participants.
- * 88 per cent of school principals recognised that PDG teachers have brought positive impact through pedagogical approaches.

130,000

teachers, students, government officials reached through the **Plastics, Sustainability & You** Module education webinar series to realign societal perceptions on plastics and effective waste management.



Contributed **12,000** devices worth a total of **RM30 million** to enable students gain access to home-based teaching and learning (PdPR).



Community Well-Being and Development

Festive cheers were brought to more than **50,000 beneficiaries** from underprivileged B40 families during festive seasons under the *Sentuhan Kasih* Festive programme.

Under the *Memampankan Ekonomi Asas Rakyat* (MEKAR) Programme, more than **2,000 families** gained access to sustainable economic growth opportunities in both urban and rural areas, with strong progress seen in empowerNCER (Phase 2) and MEKAR Kuala Nerus, Terengganu (Phase 3).

Key outcomes achieved:

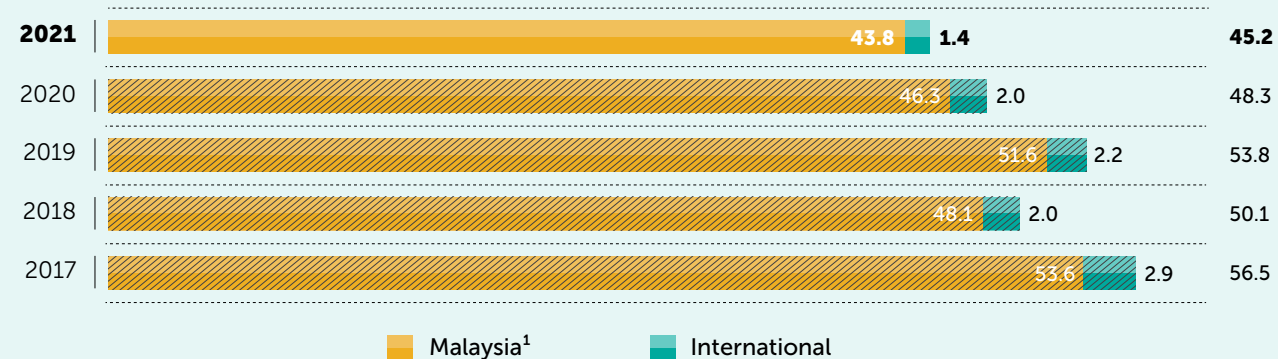
- empowerNCER Skills and Entrepreneurship Programme:
 - **78 per cent** of participants achieved the target set on increase in income.
 - **89 per cent** of participants obtained job placements.
 - **222** new jobs created.
- MEKAR Kuala Nerus, Terengganu Programme (Go-To-Market):
 - **77 per cent** have achieved their sales projection with 100 per cent turnover from their start-up phase.
 - **89 per cent** collaborated with the MEKAR alumni community in their business operations.
 - **89 per cent** incorporated their business as a legal enterprise.
 - **51 per cent** developed high-quality products and services that is ready for the market; and
 - **13 per cent** secured contracts to market and supply their products.

Five-Year Sustainability Key Performance Data

Greenhouse Gas Emissions

Total Greenhouse Gas (GHG) Emissions

(million tonnes of carbon dioxide equivalent (tCO₂e))



Note:

¹ GHG emissions data from PETRONAS Refinery and Petrochemical Corporation (PRPC) Utilities and Facilities (UF) is included since 2019, hence GHG emissions from Malaysia Operations has been restated for subsequent years.

GHG Emissions Breakdown by Scope and Gas

Key Performance Indicators	2017	2018	2019	2020	2021
Total GHG Emissions (million tCO ₂ e)	56.5	50.1	53.8	48.3	45.2
Scope 1 GHG Emissions (%)	98.9	98.7	98.9	99.1	99.7
Scope 2 GHG Emissions (%)	1.1	1.3	1.1	0.9	0.3
Carbon Dioxide (%)	73.0	80.2	80.6	82.0	86.9
Methane (%)	26.8	19.5	19.1	17.6	12.7
Other GHGs (%)	0.2	0.3	0.3	0.4	0.4
Hydrocarbon Gas Flared (million standard cubic feet per day (MMscfd)) ¹				70.9	103.1

Note:

¹ From Malaysia and international upstream operations only.

GHG Intensity¹

Key Performance Indicators	2017	2018	2019	2020	2021
GHG Intensity for Upstream (tCO ₂ e/kboe)	88.7	74.2	64.6	65.9	47.9
GHG Intensity for Refineries (tCO ₂ e/bbl)	0.017	0.018	0.018	0.019	0.018
GHG Intensity for Petrochemicals (tCO ₂ e/tonnes) ²	0.77	0.68	0.68	0.66	0.67

Note:

¹ All GHG intensity figures cover Malaysia operations only.

² Figures have been restated in alignment with the new internal emissions management guideline.

Five-Year Sustainability Key Performance Data

GHG Emissions Reduction

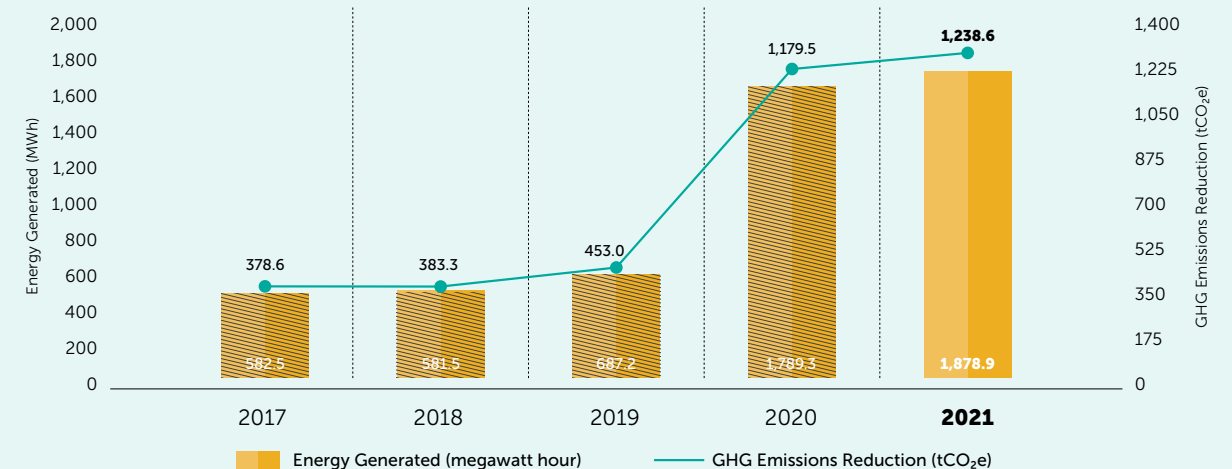
Key Performance Indicators	2017	2018	2019	2020	2021
Annual GHG Emissions Reduction (million tCO ₂ e)	2.9	1.5	1.2	0.6	4.1
Cumulative GHG Emissions Reduction (million tCO ₂ e per annum) ¹	10.1	11.6	12.8	13.4	17.5

Note:

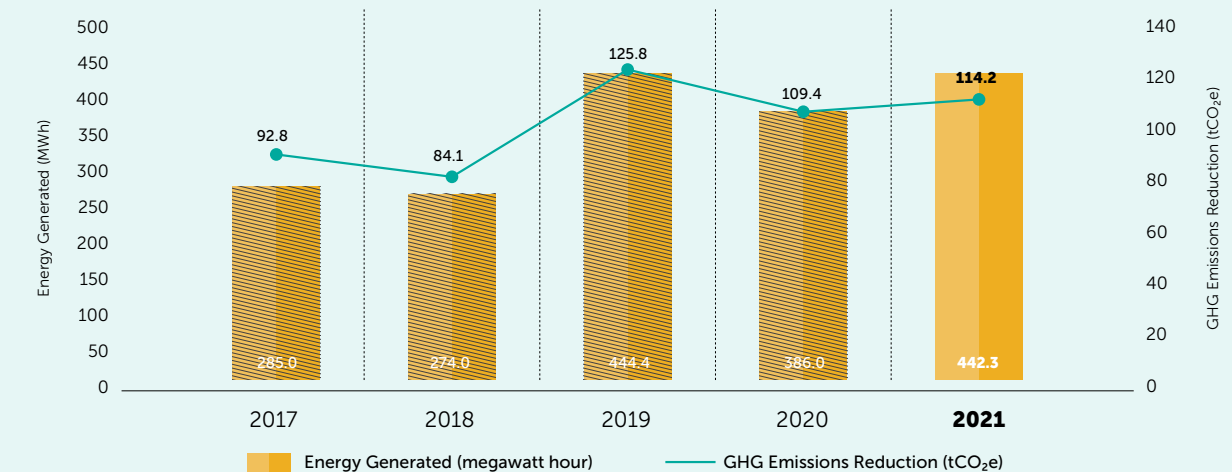
¹ Since the establishment of PETRONAS Carbon Commitments in 2012, GHG emissions reduction has been recorded starting from 2013.

Solar PV Generation Reducing Scope 2 GHG Emissions

Malaysia



International



Cumulative Renewable Energy Installed Capacity

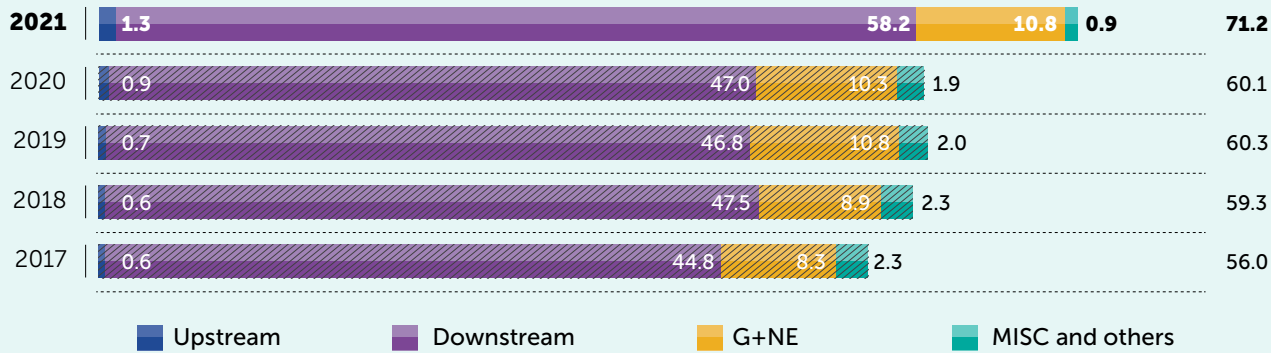
Key Performance Indicators	2017	2018	2019	2020	2021
Total Cumulative Renewable Energy Installed Capacity (megawatt)	10	10	10	644	851
Malaysia (megawatt)	10	10	10	19	29
International (megawatt)	n/a	n/a	n/a	625	822

Five-Year Sustainability Key Performance Data

Environment

Total Freshwater Withdrawal

(million cubic metres per year)



Key Performance Indicators	2017	2018	2019	2020	2021
Total Freshwater Withdrawal (million cubic metres per year)	56.0	59.3	60.3	60.1	71.2
Malaysia (million cubic metres per year)	52.6	56.4	56.8	56.8	70.2
International (million cubic metres per year)	3.4	2.9	3.6	3.3	1.0
Discharges to Water (metric tonnes of hydrocarbon)	591	715	648	532	452
Number of Hydrocarbons Spills into the Environment over One Barrel ¹ (Number of cases)	18	7	7	5	2
Total Sulphur Oxides Emissions (metric tonnes)	87,917	113,256	110,214	84,225	47,954
Total Nitrogen Oxides Emissions (metric tonnes)	159,498	151,519	148,446	138,035 ²	133,962
Total Hazardous Waste Disposed (metric tonnes)	19,755	34,688	42,121	33,349	59,228

Notes:

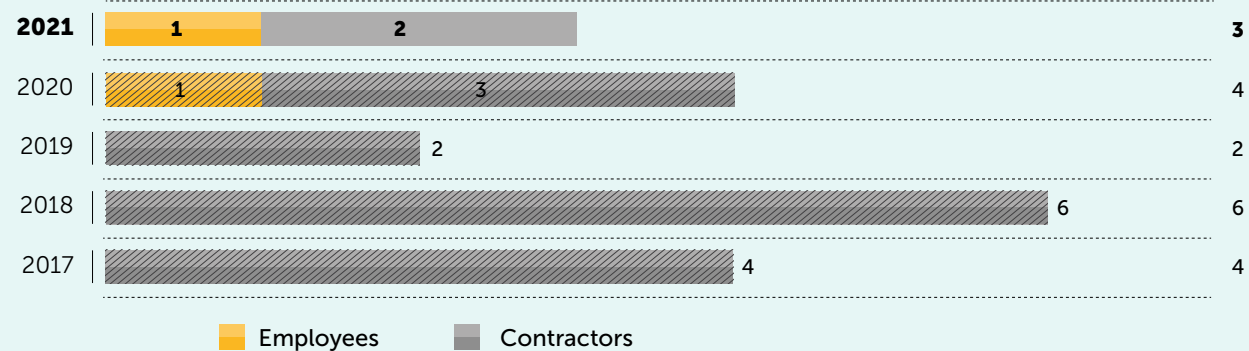
¹ One barrel is equivalent to 159 litres.

² Figure has been restated due to internal verification.

Safety

Number of Fatalities

(Number of cases)



Five-Year Sustainability Key Performance Data

Key Performance Indicators	2017	2018	2019	2020	2021
Total man-hours worked (million hours)	428	466	355	273	265
Employees (million hours)	138	130	133	120	118
Contractors (million hours)	290	336	222	153	147
Fatal Accident Rate (FAR) (Number per 100 million man-hours)	0.93	1.29	0.56	1.47	1.13
Employees (Number per 100 million man-hours)	0.00	0.00	0.00	0.84	0.84
Contractors (Number per 100 million man-hours)	1.38	1.79	0.90	1.96	1.36
Lost Time Injury Frequency (LTIF) (Number of cases per one million man-hours)	0.17	0.09	0.11	0.10	0.14
Employees (Number of cases per one million man-hours)	0.18	0.12	0.08	0.09	0.10
Contractors (Number of cases per one million man-hours)	0.16	0.08	0.12	0.11	0.17
Total Reportable Case Frequency (TRCF) (Number of cases per one million man-hours)	0.51 ¹	0.38	0.34 ¹	0.29 ¹	0.42
Employees (Number of cases per one million man-hours)	0.37	0.32	0.28	0.27	0.29
Contractors (Number of cases per one million man-hours)	0.58	0.41	0.37	0.31	0.53
Total Recordable Occupational Illness Frequency (TROIF) (Number of cases per one million man-hours – employees)	0.08	0.22	0.23 ²	0.39 ²	0.24

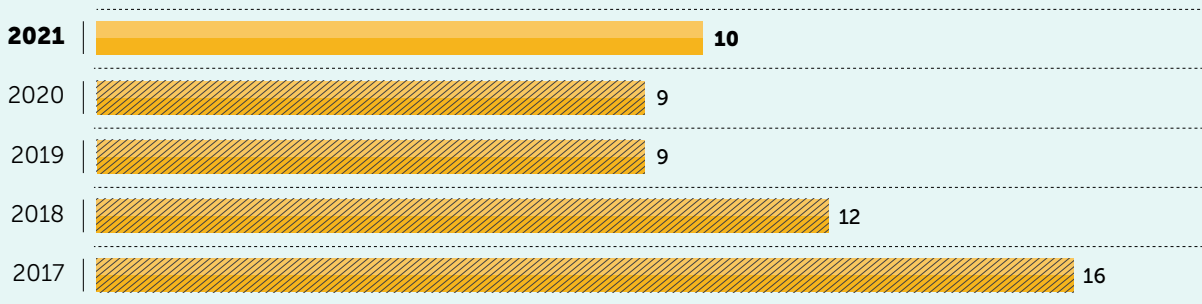
Notes:

¹ The updated TRCF numbers for 2017, 2019 and 2020 are due to internal data validation and exclusion of third parties.

² The updated TROIF numbers for 2019 and 2020 are due to internal data validation.

Number of Tier 1 Process Safety Events

(Number of cases)



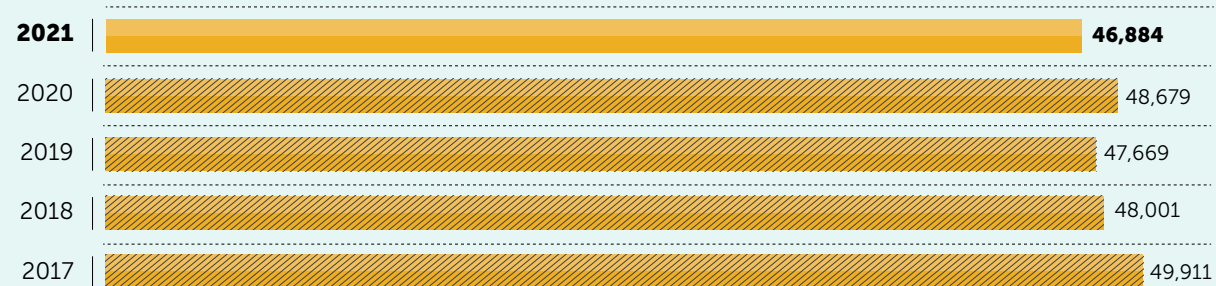
Note:

A Tier 1 Process Safety Event is a Loss of Primary Containment (LOPC) with the greatest consequence as defined by API 754, Process Safety Performance Indicators for the Refining and Petrochemical Industries. It is an unplanned or uncontrolled release of any material, including non-toxic and non-flammable materials, from a process that results in one or more of the consequences as listed in the API 754. There is a restatement of figures following review of incidents of 2017-2020, in accordance with API 754.

Five-Year Sustainability Key Performance Data

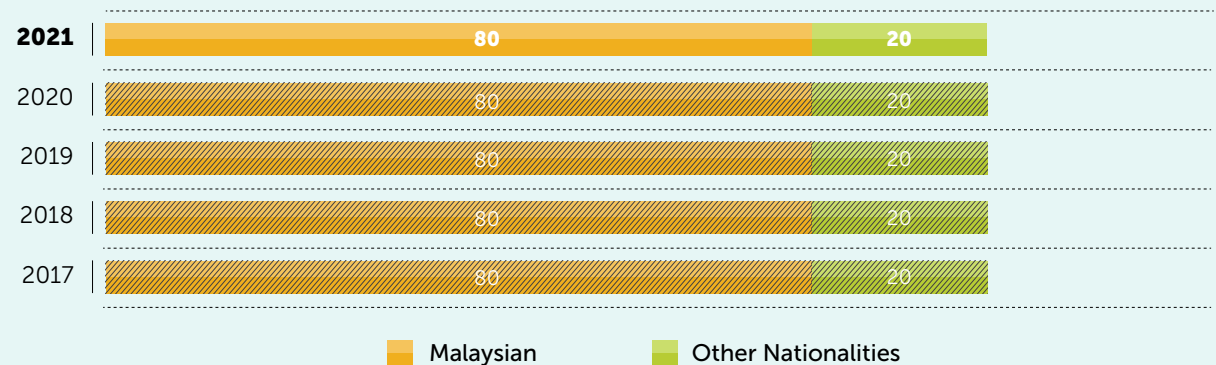
Employees

Total Number of Employees

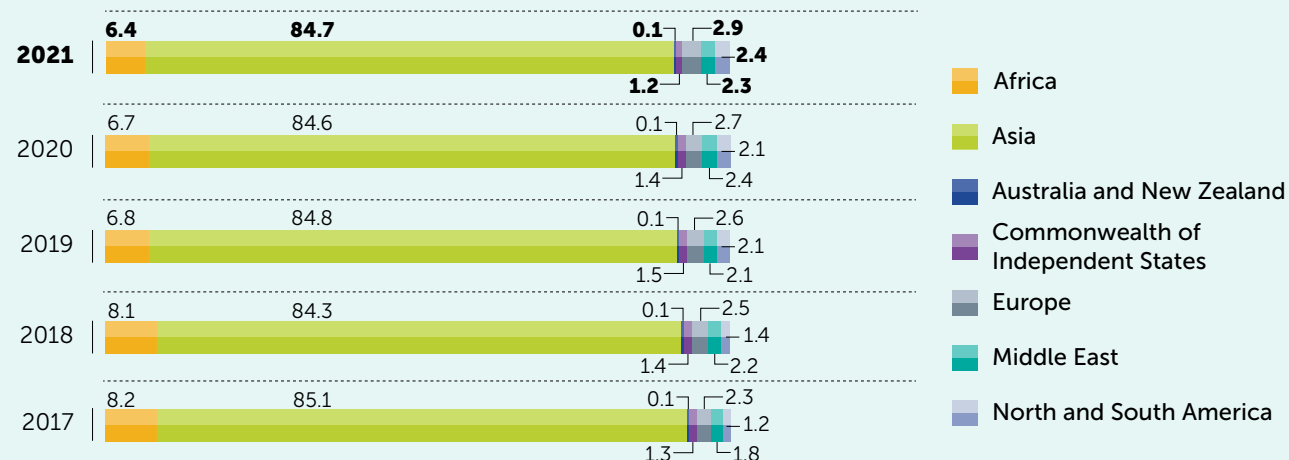
**Note:**

Decrease in 2021 due to higher attrition from contract expiry and voluntary employee separation exercise, and reduction of recruitment activities in line with business requirements.

Breakdown of Employees by Nationality (%)



Breakdown of Employees by Region (%)



Five-Year Sustainability Key Performance Data

Employees

Key Performance Indicators	2017	2018	2019	2020	2021
Employment Type (%)					
Permanent	85	87	88	86	87
Contract	15	13	12	14	13
Age Group (%)					
Above 35	46	49	52	53	59
Below 35	54	51	48	47	41
Total Number of Union Members ¹	8,796	9,949	8,420	8,476	8,353

Note:

¹ Covers registered unions in Malaysia-based entities (excluding MISC Group).

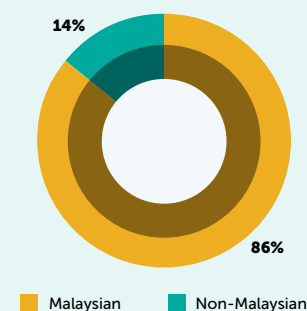
Gender Diversity

Key Performance Indicators	2017	2018	2019	2020	2021
Breakdown of Employees by Gender (%)					
Female	28	27	27	28	28
Male	72	73	73	72	72
Senior Management (%)					
Female	11	11	15	19	26
Male	89	89	85	81	74
Management Committee (%)					
Female	12	12	11	22	22
Male	88	88	89	78	78
Board of Directors (%)					
Female	21	20	14	25	30
Male	79	80	86	75	70
Female in Technical Position (%)	14	13	14	14	14

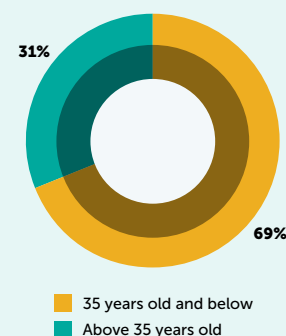
New Hires

Key Performance Indicators	2017	2018	2019	2020	2021
Total Number of New Hires (Core businesses in Malaysia)	2,409	2,512	3,498	2,160	2,172
Malaysian	1,982	2,098	2,989	2,003	1,982
Non-Malaysian	427	414	509	157	190

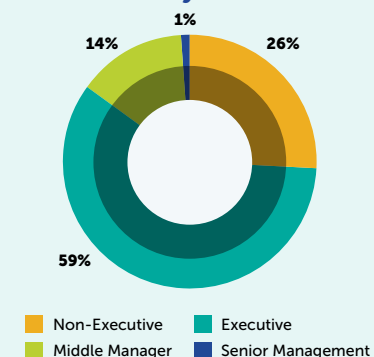
Total Number of New Hires in 2021 by Nationality



Total Number of New Hires in 2021 by Age



Total Number of New Hires in 2021 by Job Level

**Note:**

Scope/coverage represents 93 per cent of PETRONAS Group of Companies.

Five-Year Sustainability Key Performance Data

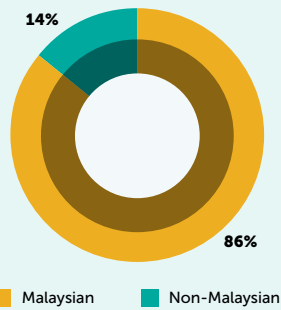
Employee Attrition Rate

Key Performance Indicators	2017	2018	2019	2020	2021
Employee Attrition Rate (%)	5.8	6.5	5.5	4.9	8.4
Female	6.8	7.3	1.8	1.3	2.8
Male	5.4	6.2	3.7	3.6	5.7

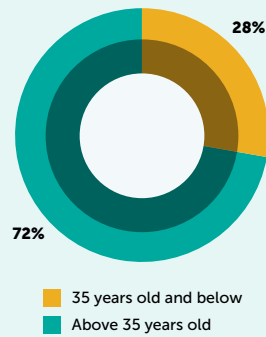
Notes:

Higher percentage in 2021 resulted from contract expiries and voluntary employee separation exercise.

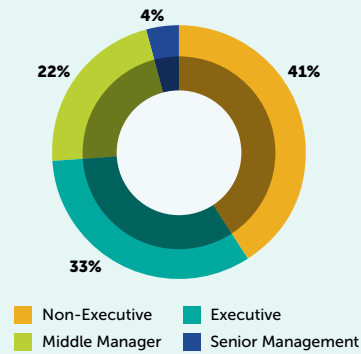
Attrition Rate in 2021
by Nationality



Attrition Rate in 2021
by Age



Attrition Rate in 2021
by Job Level



Notes:

Scope/coverage represents 93 per cent of PETRONAS Group of Companies.

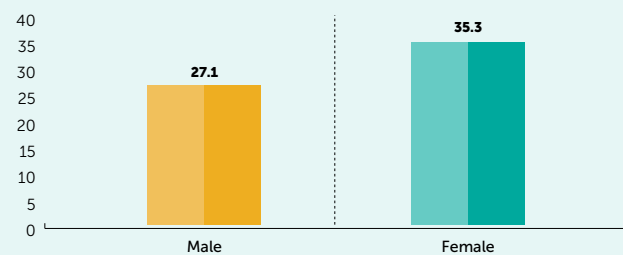
Talent and Education

Key Performance Indicators	2017	2018	2019	2020	2021
Training days per employee	7	7	7	5	4
Training investment per employee (RM)	3,353	6,649	6,543	3,588	2,386
Average total hours of training per employee (person hours)	56	52.8	53.6	36	30

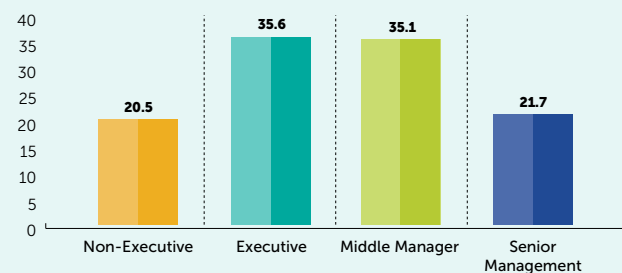
Note:

Reduction from pre COVID-19 due to travel and physical attendance restrictions.

Average Total Hours of Training per Employee
in 2021 by Gender



Average Total Hours of Training per Employee
in 2021 by Job Level



Five-Year Sustainability Key Performance Data

Number of Groupwide Technical Expertise

Key Performance Indicators	2017	2018	2019	2020	2021
Technical Authorities (TA)	499	577	340	501	601
Technical Professionals (TP)	860	941	1,028	1,173	1,281
Technical Trade Specialists (TTS)	206	225	240	259	262

Key Performance Indicators	2017	2018	2019	2020	2021
Number of PETRONAS Scholars Recruited	337	262	206	219	220
Recruited by PETRONAS (%)	48	63	67	61	66
Recruited by Others (%)	52	37	33	39	34
Number of Scholarships Awarded to Malaysians	387	329	399	370	302
International Universities (%)	45	49	46	25	34
Malaysian Universities (%)	55	51	54	75	66
Number of Scholarships Awarded to Non-Malaysians at Universiti Teknologi PETRONAS	118	88	78	42	41

Human Rights

Key Performance Indicators	2017	2018	2019	2020	2021
Security personnel trained in human rights policies or procedures	n/a	210	161	913	1,415

Fair Employment

Key Performance Indicators	2017	2018	2019	2020	2021
Employees taking parental leave (Number of employees)	n/a	n/a	n/a	n/a	2,179

Notes:

- Parental leave covers maternity and paternity leave only.
- Scope/coverage represents 81 per cent of PETRONAS Group of Companies.