

# Health and Safety

## Why Is It Important?

The health and safety of our employees and contractors is of paramount importance to us. Given the nature of our industry, our people are exposed to a range of health and safety risks, such as hazardous environments, exposure to pressurised hydrocarbon, gas and chemicals, as well as heavy machinery and equipment. Workplace injuries and incidents can lead to severe impacts for both our business and stakeholders.

The consequences of poor health and safety practices are far-reaching and can result in regulatory fines and penalties, stop-work orders and reputational damage.

But above all, our people's physical and mental well-being are at stake, affecting their quality of life and ability to work and care for their families. Poor health and safety in the workplace can even lead to loss of life, with devastating effects on loved ones.

Four fatalities were recorded despite the increased focus on safety culture and improving safety practices. The fatalities reported were from fire, electrocution, dislodged pipeline and diving activity. Following these tragedies, we conducted four groupwide Health, Safety and Environment (HSE) stand-downs attended by 54,000 participants, underscoring our continuous commitment to prioritising the health and safety of our people. Immediate interventions have been implemented to address key issues and reduce incidents by strengthening frontliner and contractor competency, compliance to HSE requirements, as well as intensifying learning culture.

We also observed a 33 per cent increase in employee Total Recordable Occupational Illness Frequency (TROIF) compared to 2021. Food poisoning was one of the contributors with 35 cases reported. To avoid recurrences, interventions were implemented to ensure our external caterers for food and water supply are verified by the Ministry of Health (MOH).

*[For more information about our health and safety performance, please refer to page 253]*

Given the inherent risks in our industry, the ability to effectively promote a culture of safety throughout our operations enables employees and contractors to achieve their full potential, as they feel safe, secure and engaged. This will lead to a more high-performing and productive work environment. Moreover, investments in health and safety will strengthen our position as a caring and responsible organisation to retain top talent in the industry.

## What Is Our Approach?

At PETRONAS, we continuously reinforce a culture of safety across our operations, taking cue from the learnings gained over the last few years. This is important given the transformation in our work environment as the country transitioned into COVID-19 endemicity. We drive impactful interventions, mainly enhancing competencies and driving culture and assurance, enabled by digital technology. We continuously scale up contractor management and strengthen the implementation of the Generative HSE Culture (GC) programme at all levels through Accountability and Behaviour Reinforcement Programme (ABR). The ABR encourages HSE Desired Behaviours across our operations, and minimises undesired behaviours.

In addition to the current standards, guidelines, systems and processes, we pushed ahead on improving HSE First Line Assurance to drive HSE Management System and Legal Compliance groupwide, which included Self-Regulation capability development. Meanwhile, Process Safety continues to experience further improvements with the establishment of the Loss of Primary Containment (LOPC) Reduction Framework and the Fire Prevention and Mitigation Framework (FPMF).

In terms of risk management, we subscribe to Hazards and Effects Management Process (HEMP) which ensures hazards and risks are controlled. We use As Low As Reasonably Practicable (ALARP) principle to set the control levels for risks. Additionally, we continue to leverage on HSE Integrated Risk Assessment (HIRA), a one-stop centre for risk assessment located in myHSSE, which provides analysis, trends and also common issues that require efficient intervention.

### We have a comprehensive list of policies, guidelines and standards that ensure a culture of health and safety:

- PETRONAS HSE Policy
- PETRONAS Substance Misuse Policy
- PETRONAS HSE Management System (HSEMS)
- PETRONAS HSE Mandatory Control Framework (MCF)
- PETRONAS Technical Standards (PTS)
- PETRONAS Technical Guidelines (PTG)
- Hazard Effect Management Process (HEMP)
- Process Safety Loss of Primary Containment Reduction (PSLR) Framework
- Fire Prevention and Mitigation Framework (FPMF)
- PETRONAS Contingency Planning Standard
- Crisis and Incident Management System

# Positive Social Impact

## Digital myHSSE 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 16 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. Group HSE endeavours to improve this further.



<p><b>IPSS</b></p> <p><b>Integrated Process Safety Solution</b></p> <p>An integrated solution to optimise Process Safety Work processes and ensure governance in minimising human error, driving compliance and providing valuable insight for risk management.</p>	<p><b>FMS</b></p> <p><b>Fatigue Management System</b></p> <p>A centralised system to track and monitor the Hours-of-Service Limit (HSL) for PETRONAS' employees and contractors.</p>	<p><b>ICMS</b></p> <p><b>Integrated Contractor Management System</b></p> <p>A system to screen contractors and prevent unauthorised personnel from entering PETRONAS' premises.</p>
<p><b>CMIS</b></p> <p><b>Crisis Management Information System</b></p> <p>A solution to minimise human interventions by providing an assisted approach in managing a crisis through technology.</p>	<p><b>EPICS</b></p> <p><b>Environment and Social Performance Integrated and Centralised System</b></p> <p>An integrated system that provides holistic environmental and social performance data management for compliance and sustainability reporting.</p>	<p><b>UAUC</b></p> <p><b>Unsafe Act, Unsafe Condition</b></p> <p>A centralised platform to report, track and provide analytics of Unsafe Act, Unsafe Condition and Safe Observation for PETRONAS Group.</p>
<p><b>e-RGO</b></p> <p><b>Ergonomics Management System</b></p> <p>An ergonomic self-assessment adjustment and case tool to reduce the risk of musculoskeletal disorders.</p>	<p><b>HIRA</b></p> <p><b>HSSE Integrated Risk Assessment</b></p> <p>An integrated system to manage and perform HSSE-related risk assessments.</p>	<p><b>MARS</b></p> <p><b>Monitoring and Reporting System</b></p> <p>An integrated and centralised system to report, record and monitor HSSE performance indicators for PETRONAS Groupwide.</p>
<p><b>AM</b></p> <p><b>Action Management</b></p> <p>A centralised platform to record and track groupwide HSSE-related action items for PETRONAS.</p>	<p><b>HSE ABR</b></p> <p><b>HSE Accountability and Behaviour Reinforcement</b></p> <p>A digital solution to manage both positive and constructive reinforcements.</p>	<p><b>IM</b></p> <p><b>Incident Management</b></p> <p>A system to report, record and track actions on groupwide HSSE incidents and grievances for PETRONAS.</p>
<p><b>eCHEMS</b></p> <p><b>e-Chemical Management System</b></p> <p>A centralised system to request, screen and approve chemicals before purchases are made as this ensures compliance to HSE Legal Requirements.</p>	<p><b>ePTW+ 2.0</b></p> <p><b>ePTW+ 2.0</b></p> <p>A Groupwide Permit-to-Work (PTW) system that standardises the ePTW system across PETRONAS operations.</p>	<p><b>PSRS</b></p> <p><b>PETRONAS Self-Regulation System</b></p> <p>A centralised digital platform for Plant Management System (PMS) implementation.</p>

**STEWARDSHIP, HEALTH, INFORMATION AND ENVIRONMENT LINKED DATABASE (SHIELD)**

<p><b>PETRONAS Safety Data Sheet (SDS) Portal</b></p> <p>A portal where PETRONAS product SDSs are made publicly available to all stakeholders in efforts to promote transparency and sound chemical management. Results of product risk assessments are also summarised and made available to stakeholders through Global Product Strategy Safety Summaries (GPSS) to further communicate product risk in line with our overarching objective of supporting proper product risk management throughout our products lifecycles.</p>	<p><b>myHealth</b></p> <p>Aims to support the general employee occupational health for PETRONAS. This includes the planning, execution, and archiving of Fitness-to-Work, Medical Surveillance &amp; Substance Misuse health protocols. myHealth also includes a self-service health assessment which can be done in one go and includes self-generated Letter of Undertaking, as well as a selection of preferred Approved Medical Examiners (AME).</p>
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## Value Creation in 2022

### Culture

We continued to reiterate the importance of building a culture of Health and Safety throughout our operations and processes, as this will protect our employees, improve productivity and strengthen our reputation in the industry.

#### Shaping Generative HSE Culture Towards Self-Regulation

We strengthened our safety culture by introducing the Generative HSE Culture (GC) Framework, which promotes accountability and pace to business units, operating units and assets based on site-specific needs. Themed "Doing Things Differently", we collaborated with *Institut Teknologi Petroleum* (INSTEP) whereby INSTEP will fully manage and execute the GC training programmes, and work towards Self-Regulation (SR) certification. This was done to enable Group Health, Safety and Environment (HSE) to refocus on enhancing the overall effectiveness of this programme, maintain standards and quality, perform continuous improvements and measure impact based on its alignment to SR requirements and expectations.

Regular engagements with key stakeholders across all business units were conducted to ensure alignment with the Generative HSE Culture framework and strategy to drive the GC journey forward.

#### Generative HSE Culture Highlights:

- **25** engagement sessions to drive GC forward.
- Developed three new GC modules to align with Self-Regulation Framework.
- Total number of **1,209** GC participants trained in 2022.
- Developed governance documents on GC trainings in collaboration with INSTEP.

### HSE Accountability and Behaviour Reinforcement (ABR)

Good behaviours often go unnoticed. But when things go wrong, we are quick to jump and forget to consider human factors. With HSE Accountability & Behaviour Reinforcement (HSE ABR), it is different.

PETRONAS continues the implementation of HSE ABR programme, which was rolled out in 2021 to elevate the HSE Culture towards achieving Generative HSE Culture. The HSE ABR is to ensure a consistent approach across PETRONAS when recognising and rewarding the Desired HSE Behaviour, and fairness when addressing Undesired HSE Behaviour.

In 2022, through the HSE ABR implementation, we achieved the following:

- Evaluated Human Behaviour Categorisation (HBC) elements in 97 per cent of completed investigations on major HSE incidents and major HSE non-compliances.
- 100 per cent domestic operations and selected international operations have HSE ABR Committee (ABRC) established.
- Successful integration of other HSE Systems with the HSE ABR system, which improves management of positive and constructive reinforcements.

## Positive Social Impact

### Towards Achieving Good Health and Well-being with MESTIfit4health

PETRONAS has taken a proactive step to prioritise employees' wellness towards achieving SDG 3 on Good Health and Well-being via MESTIfit4health, which is our signature programme. MESTIfit4health covers five main elements of Move Right (physical activity), Eat Right (healthy eating habit), Sleep Right (adequate and quality sleeping habit), Think Right (mental health and well-being) and Individual Right (responsibility of making healthy living as a choice to manage health risks). Among the initiatives for health risk reduction and management through MESTIfit4health are:

#### Think Right (Mental Health and Well-being)

##### Objectives

- Address psychosocial risks factors faced by employees.
- Encourage affected employees to reach out for early psychological support and reduce risk of developing mental health conditions.
- Implement and drive effective mental health and well-being interventions at the workplace.

##### Outcomes

- Implementation of *"Towards No Meeting"* after planned work hours reflected through leadership tone at all levels.
- Embedded knowledge in creating psychosocially safe work environment through leadership training modules.
- Upskilled 885 leaders on psychological safety and creating psychosocially safe work environment through Generative Culture programme and PETRONAS Leadership Centre's Strategic Excellence programme.
- Leaders conducted 24 sessions of Intentional Wellness Engagement or Leaders Reach Out with 12,500 employees focussing on mental health and well-being.
- 33 MIND-A-CARE Facilitators and 169 MIND-A-CARE Ambassadors trained through unique in-house MIND-A-CARE programme for early detection and intervention of psychosocial risk factors and subsequently to reduce mental health burden faced by employees.
- 5,380 employees including those at offshore facilities completed MIND-A-CARE Awareness training.
- 1,046 employees enrolled in the Individualised Coaching for Resiliency Enhancement (i-C4RE) programme to build mental health resiliency for coping with adversities/challenges and bouncing back from setbacks/failures.
- Structured Return to Work programme post prolonged mental illness leave.
- Strengthened and enhanced promotion of Employee Assistance Programme (EAP) and MyFriends with strong traction for early reach out and digital coaching.
- Achieved significant cost reduction on mental health treatment, 13.5 per cent lower (RM4.5 million) in 2022 compared to 2021 following the mental well-being interventions implemented. The risk of developing mental health conditions such as anxiety and depression potentially also reduced, with an estimated Return of Investment (ROI) at RM15.98 million.

#### Move Right (Physical Well-being)

##### Objectives

- Promote active lifestyle and foster team-work culture in prevention of non-communicable diseases.
- Support environment and community well-being.

##### Outcomes

- Opened 10 virtual walking trails across 10 countries, namely Brazil, Brunei, Indonesia, Iraq, Malaysia, Mexico, South Africa, Spain, Turkmenistan and United Arab Emirates.
- Achieved more than 6.4 billion steps through our virtual walking routes, exceeding the target of five billion steps.
- More than 50,000 trees have been planted at 14 sites across 11 states in Malaysia.
- Reduced approximately 200 tonnes of carbon and generated RM872,000 in income for 254 underserved people through the Walk4Trees programme in collaboration with PETRONAS Young Professionals Club (YPC).

### Eat Right

#### Objectives

- Prevent occurrence of food poisoning incidents.
- Establish strong collaboration with the government and other stakeholders including the Ministry of Health Malaysia (MOH), food service providers, In-house Caterers (IC) and External Caterers (EC).

#### Outcomes

- Continuous implementation of Food and Water Safety programme.
- Carried out timely hygiene inspections to ensure IC and EC adhered to hygiene certifications and regulatory compliance.
- Strengthened collaboration with the Food Safety and Quality Unit, MOH.
- Introduced a one-stop digital centre for Food and Water Safety Resources, which lists out verified EC and reference materials.
- Catering of food from external service providers are only allowed to be selected from the EC listed in the one-stop digital centre.

### Sleep Right

#### Objectives

- Reduce fatigue-related incidents among PETRONAS' staff and contractors.

#### Outcomes

- Strengthened and implemented the Fatigue Management System (FMS) for Non-Plant high risk groups (remote onshore – pipeline right-of-way (ROW), land transport and offshore).
- The Sabah-Sarawak Gas Pipeline (SSGP) emerged as the first non-plant to implement FMS across all our operations and businesses where Global Positioning System (GPS) mobile application was introduced in areas without internet connection.

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MOVE RIGHT!

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EAT RIGHT!

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SLEEP RIGHT!

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THINK RIGHT!

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INDIVIDUAL RIGHT!



MESTI  
fit4health™





## Positive Social Impact

### Compliance

In scaling up our efforts to improve safety performance, we proactively implemented various initiatives and measurements to ensure safety precautions are embedded throughout our businesses and operations.

#### Achieving HSE Compliance Through Self-Regulation (SR)

We continue to improve on our Self-Regulation practices and strived to achieve Self-Regulation certifications as this would result in a higher level of compliance towards legal and safety standards, as well as effective implementation measures to control hazards and minimise incidents.

We focused on driving key engagements and alignment of the Self-Regulation Implementation Masterplan with key stakeholders and completed the necessary pre-certification audits and Self-Regulation culture assessments. We also ensured Self-Regulation Department (SRD) personnel obtained the required certifications to strengthen SRD as a qualified third-party auditor for Self-Regulation implementation and surveillance audit in PETRONAS.

In terms of governance, we officialised the Self-Regulation Tripartite comprising members from Regulator (DOSH), Occupiers (PETRONAS OPU) and Third-party Service Providers (Institut Teknologi PETRONAS (INSTEP) and Universiti Teknologi PETRONAS (UTP)) as a platform that advocates Self-Regulation governance and regulations to support and sustain SR Programme journey towards operational and compliance excellence. We also completed the integration of PETRONAS Self-Regulation System (PSRS) with other relevant PETRONAS systems namely PETRONAS Risk-Based Inspection (PRBI), myAssurance and Health, Safety, Security, and Environment (HSSE) Monitoring and Reporting System (MARS), creating an integrated digital platform for the SR programme implementation which was deployed to all OPUs embarking on the programme.

Conducted SR Implementation Masterplan engagement with **24** CEOs and OPU Heads including leaders from Upstream governance departments, as well as Department of Occupation, Safety and Health (DOSH) state representatives to share and roll-out the Masterplan.

Completed **seven** audits and Culture Baseline assessments in **four** OPUs as part of their overall journey towards SR certification.

Achieved certification for **22** out of **27** SRD personnel with ISO45001 as Lead Auditor by Chartered Quality Institute (CQI) and International Register of Certificated Auditors (IRCA) in preparation for SRD to become the SR Qualified Third-Party for PETRONAS.

Conducted **10** stakeholder engagements and workshops with OPUs and DOSH representatives to facilitate and provide the necessary advisory on the development and implementation of Self-Regulation programme.

#### Leveraging Digital Technology in Managing Crisis and Emergencies

##### PETRONAS Communication and Control Centre (COMCEN)

COMCEN is PETRONAS' one-stop centre for incident and crisis management, as well as the designated centre to coordinate and respond to emergencies and crisis. This one-stop centre manages numerous HSE and Security-related incident notifications and crisis, including issuance of various HSE advisories and warnings across our businesses.

### Crisis Management Information System (CMIS)

Launched in 2019, Crisis Management Information System (CMIS) is a digital solution that minimises human actions and communications errors by providing technology and systems to manage emergencies and crises at enterprise level.

CMIS has allowed us to enhance crisis management best practices as it provides real-time emergency response updates to internal stakeholders seamlessly transfer data and information. We have also integrated state-of-the-art oil spill consequence modelling tool (OILMAP) into CMIS to enable swift and comprehensive emergency response to oil spill incidents.

- Conducted **16** CMIS trainings and **2** webinars across PETRONAS Group.
- Utilised in **8** Tier-2 and **2** Tier-3 emergency exercises, with positive feedback from stakeholders.

### COVID-19 Reporting and Monitoring

As Malaysia transitions towards endemicity and business activities resume, we ensured seamless and safe normalcy interventions on readiness and implementation of processes and procedures to return to office through 50 per cent work in office and 50 per cent work from home rotation and subsequently 100 per cent with Flexi-Work Arrangement, including opening up for unvaccinated and partially vaccinated employees, without disruptions.

As part of our COVID-19 reporting and monitoring, Strategic Crisis Management in collaboration with Occupational Health (OH) division, spearheaded the introduction of Microsoft Forms and a digital dashboard to replace the conventional Notification Form (NF) used previously to report COVID-19 cases. The dashboard provided overall insights into the latest COVID-19 situation across our businesses and operations. With this in hand, the Executive Leadership Team and Corporate Command Centre (C3) were able to make data-driven decisions and decide on the right approach to be taken by its Pandemic Preparedness and Response Team (PPRT).

Our ability to make effective and swift adjustments amidst an evolving environment is considered to have led to a significant reduction in COVID-19 cases, clusters and deaths following the introduction of stringent measures and effective communications across all businesses and operations.

- Reduced **94 per cent** of manhours to produce daily COVID-19 reports and achieved cost avoidance of up to **RM300,000**.
- Zero business and reputational interruptions recorded.
- Achieved **99.8 per cent** primary vaccine uptake and booster uptake as compared to **49.7 per cent** for Malaysia's overall population.



We implemented measures to protect the health of our workforce during the COVID-19 pandemic while ensuring business sustainability through effective collaborations between Pandemic Preparedness and Response Team (PPRT) COVID-19 members, internal and external stakeholders including government and private bodies.

### Prioritising Industrial Hygiene

One of our topmost priorities is to ensure the health of our employees and contractors within and beyond the workplace. We go beyond regulatory compliance and implement global best practices to deliver sustainable value and ensure a dedicated, productive and high-performing workforce. This include continuous efforts to address all workplace health hazards and respective risks such as chemical hazards, physical hazards (i.e., noise, radiation, thermal and vibrations), as well as biological, ergonomic and psycho-social hazards.

In 2022, we made progress on the following areas:

#### Hazardous Chemical Management

We strengthened the management of hazardous chemicals aimed to reduce overexposure to hazardous chemicals and increase compliance. One such initiative is an online digital platform named eCHEMS that manages and tracks the procurement, receiving and storage of hazardous chemicals. The digital system minimises human-interface manhours spent on verifying compliance of incoming procured hazardous chemicals and ultimately reduce the possibility of rejection at the receiving end.

## Positive Social Impact

- **Zero** cases of over exposure to chemicals in 2022.
- Achieved **95 per cent** compliance to chemical management in 2022.

### Noise Reduction Programme

We implemented a groupwide Noise Reduction Programme focusing on reducing noise at source and strengthening overall Health Risk Management. This was done through Noise Engineering Control studies targeting identified high noise-emitting equipment and enhanced controls.



### Digitalising the Health Risk Assessment (HRA)

Health Risk Assessment (HRA) was digitalised and integrated into HSSE Integrated Risks Assessment (HIRA). We implemented the enhanced HRA methodology, focusing on operationalisation and integration into other Safe System of Work (SSOW). The enhanced methodology includes a newly-developed psychosocial risk assessment (PsyRA), improving how workplace psychosocial risk factors are being identified and assessed.

- Operationalisation of HRA output within other Safe System of Work, and overall company health risk profile.

### Advanced Ergonomics Risk Assessment (ERA)

We fortified the Ergonomics Risk Management by implementing the Advanced Ergonomics Risk Assessment (ERA) Tool, which is known as Humantech and Ergonomics Control Inventory.

- Reduced ergonomic risk from **60 per cent** in 2021 to **20 per cent** in 2022 and achieved time saving for **50** tasks in 12 locations through Advanced ERA.

### Improved Risk Management Related to Industrial Hygiene

We continue to conduct First Line Assurance for Business Units, OPU's and our assets, which looks into managing risks related to Industrial Hygiene that are linked to day-to-day operational activities. We achieved increase in overall compliance as follows:

Programme (%)	2021	2022
<b>Chemical Management</b>	<b>95</b>	<b>95</b>
SDS Availability	91	94
Chemical Labelling	90	95
<b>Hearing Conservation</b>	<b>93</b>	<b>97</b>
Hearing Protection Zone Sign	98	99
Personal Hearing Protector (PHP) Issuance Record	94	95
<b>Radiation Protection</b>	<b>99</b>	<b>99</b>
Calibration of Measuring Equipment	91	93
Availability of Measuring Equipment	91	95
Annual Equipment Maintenance	91	96

### Safety Management

We strengthened site supervision and compliance to SSOW to address key issues and reduce incidents.

- Seven Second Line Assurances and **17** unannounced visits were conducted at selected sites to strengthen site compliance of HSE requirements.
- As an effort to better understand the human performance aspects that contributes to incidents, PETRONAS has introduced the Categorisation of Incident Causes (CIC) that further defines categories of Human Factor for every incident investigation.
- This led to improved site discipline and interventions:
  - Experienced a **55 per cent** increase in Stop Work Authority (SWA) from the previous year.
  - Reported a **20 per cent** increase in Unsafe Act Unsafe Conditions (UAUC) from the previous year.



As a lagging indicator that demonstrates improvement of safety performance, Lost Time Injury Frequency (LTIF) for the PETRONAS Group reduced by seven per cent (from 0.14 to 0.13) compared to the previous year.

	2018	2019	2020	2021	2022
<b>Lost Time Injury Frequency (LTIF) (Number of cases per one million man-hours)</b>	0.09	0.11	0.10	0.14	0.13

### Process Safety

Our commitment to Process Safety is a crucial aspect of our operations and is demonstrated by our concerted efforts to achieve significant reductions in Process Safety Events (PSE) 2022.

#### Governance

- Implemented Fire and Loss of Primary Containment (LOPC) Reduction Framework (FPMF and PSLR) across all domestic and international assets through collaboration with technical experts.
- Conducted peer-review on FPMF and PSLR to verify implementation effectiveness.
- Completed engagement for domestic and international assets for an effective dynamic risk management.

#### Leveraging Digitalisation to Improve Oversight

- Continue using Fire Prevention and Mitigation Framework (FPMF) and Process Safety Loss of Primary Containment Reduction (PSLR) Framework to optimise Process Safety work processes, provide governance oversight to minimise human error and ensure compliance, while providing valuable insights into risk management.
- Enhanced Integrated Process Safety Solution (IPSS) by launching and enhancing the Engineering and Organisational Change Management and Safety Review prior to starting up digital modules.
- Launched the Process Safety Awareness for Frontliners via digitalised HSE Learning modules to strengthen frontliners' awareness to manage risks and ensure business continuity.

#### Strengthening Competencies

- Conducted OPU site engagements to strengthen staff ownership of Process Safety culture.
- Partnered with the Center for Chemical Process Safety (CCPS) to encourage knowledge sharing on Process Safety for PETRONAS and the industry.
- Formed the Integrated Process Safety Management (IPSM) Committee to improve collaboration efforts in steering Process Safety requirements from various Management Systems.

We reduced LOPC by 33 per cent with an impressive 81 per cent reduction in Operational Integrity-related LOPC compared to 2021. Furthermore, we reduced Tier 1 PSE by 30 per cent.

<b>HSE Performance Indicators</b>	2018	2019	2020	2021	2022
<b>Number of Tier 1 Process Safety Events (Number of cases)</b>	12	9	9	10	7

## Positive Social Impact

### Capabilities and Competencies

We aim to constantly embed safety in everything we do. In reinforcing this principle, we focused on realising our Generative HSE Culture programme by enhancing HSE capability development programmes, improving the sustainability of HSE programmes while embedding HSE values and importance among our stakeholders and the larger community.

#### Drive Learning Culture as Part of a Continuous Effort in Learning from Incidents

As part of our journey in building safety culture, we emphasize on the importance of learning from previous incidents in order to avoid or minimise issues in the future.

#### Contractor HSE Management

01

Conducted **13** Reflective Learning and incident sharing sessions involving **2,724** participants.

02

Developed and published **four** lessons learned videos on PETRONAS internal platforms to improve learning from past incidents.

03

Conducted four groupwide collaborative learnings involving **1,237** participants. Learning focus areas included Electrical Fire, Auto Ignition, Piping Corrosion and Process Safety in design.

We enhanced contractor HSE management, where our contractors were required to undergo specific training to ensure they possessed the necessary competencies in order to be part of our value chain.

- The focus on contractor management is demonstrated through the continuation of the PETRONAS Contractor HSE Mentorship Programme to improve the HSE system and performance. **Fifty** contractors subscribed to the programme whereby four contractors graduated in 2022.
- Established a Community of Practitioners (CoP) as a common platform for HSE Frontliners from contractors' companies to communicate HSE requirements and sharing of best practices.
- Launched PETRONAS Safety Frontliners Development Programme in July 2022, intended to standardise Contractor Safety Practitioner roles (including Safety and Health Officer, and Site Safety Supervisor) and equip them with relevant/tailor-made knowledge.

### Collaborations and Partnerships

#### • PETRONAS Disaster Management Collaborative (PDMC) Workshop

We recognise the importance of collaborating with our internal and external stakeholders in strengthening our crisis management preparedness. Towards this end, we collaborated and involved various Government authorities and agencies in the workshop.

- **Three** PDMC workshops in East Coast and Sarawak Region (Kemaman, Miri, Bintulu)
- Participated by **31** PETRONAS operating units and **84** government authorities and agencies, involving **370** participants.



#### Improving Fire and HAZMAT Response Management

We focused on improving Fire and HAZMAT Response Management (FHRM) across our operations by collaborating with the Fire and Rescue Department Malaysia (FRDM) to strengthen our regulatory compliance. We also strengthened leadership and best practices with CEFS entities and our operations' Fire Response Unit which resulted in quarterly cross collaborations and advisory meetings between Group Health, Safety and Environment (GHSE) and Centralised Emergency and Fire Services (CEFS) entities. Collaborations with government authorities and agencies, including international stakeholders were also held.

- Introduced **five** Emergency Response Training Modules;
- Conducted study on firefighting foam with Fire Research Centre (PUSPEK) BOMBA CEFS Kerteh;
- Established guidelines in Managing Community Awareness and Emergency Response (CAER).

Our ability to develop these practices internally led to cost savings of approximately RM200,000.

- Collaboration with the Centralised Emergency and Fire Services (CEFS) and OPU's Fire Response Unit resulted in the introduction of three best practices in FHRM:
  - Standardised *Ujian Kecergasan Jasmani Kebangsaan* (UKJK)
  - Identified training module content on emergency response
  - Emergency response equipment dashboard to be implemented in 2023
- The Fire Safety and Emergency Response Community of Practitioners (CoPs) was chosen as the Top 2 Performing CoPs in PETRONAS (among 68) during Knowledge Management Day 2022, with **RM90 million** potential value creation.

### Upskilling our Emergency and Crisis Management Capabilities

#### • Natural Disaster Management Committee (NDMC)

In strengthening our crisis management capability, we established and provided guidance to our Natural Disaster Operation Committee (NDOC) and Natural Disaster Operation Coordination Committee (NDOCC) members in managing natural disasters to minimise impact on people, the environment, assets and our reputation.

01

Completed the Natural Disaster Contingency Plan (NDCP) for all **six** identified regions (Southern, Northern, Central, Sarawak, Sabah and Labuan).

02

Upskilled **127** members and facilitated natural disaster crisis management exercises.

#### • Country Contingency Plan

We reviewed and revised the Country Contingency Plan (CCP) Technical Training and made it available to all our international assets. We also introduced two new CCP Technical Trainings, namely to Japan and Australia.

Successfully upskilled Country Contingency Team (CCT) members to improve capabilities and preparedness in managing crisis in international assets.

Conducted **six** exercises on crisis management for Japan, Mexico, South Sudan, and the United Arab Emirates.