

Material Topics

Materiality Process and Matrix

In our commitment to sustainable practices, we champion purposeful and informed value creation that adapts to stakeholder needs and environmental changes beyond routine checklists.

This year, we revalidated our material topics, ensuring alignment with our commitment to sustainability, strategic endeavours and transparent disclosure practices. We apply a dual perspective, combining an inside-out assessment with an outside-in evaluation. This approach is pivotal in informing a holistic and integrated strategy to effectively manage both risks and opportunities that lie at the centre of our operations.

Materiality Assessment Revalidation



Step 1: Identification

We studied regulatory changes, media reports and the Sustainability Accounting Standards Board (SASB) to identify material sustainability topics. SASB was particularly valuable as it aligns with the new International Sustainability Standards Board (ISSB).



Step 2: Stakeholder Engagement

We obtained detailed feedback from a variety of external stakeholders, including investors, financial institutions and rating agencies to assess the impact of material topics on our business. The assessments conducted throughout the year provided valuable insights, guiding our materiality assessment. Stakeholders' concerns, queries and responses were documented as inputs for the assessment.



Step 3: Prioritisation

We prioritised strategies and focus areas through initiatives, commitments and discussions at the Executive Leadership Team and Board levels. Material topics were ranked based on alignment with risk elements in PETRONAS Corporate Risk Profile.



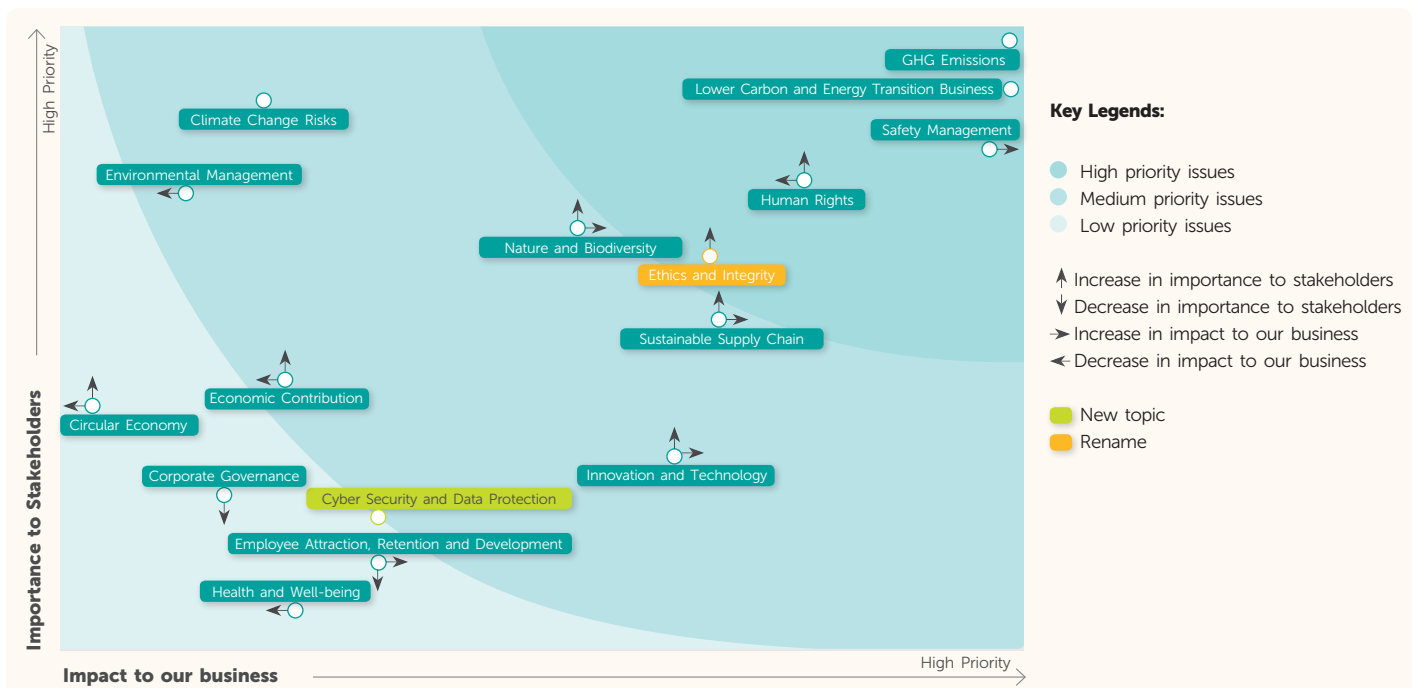
Step 4: Endorsement

We submitted revalidation results to the Sustainability Committee, formerly known as the Sustainability Council, for approval by the Vice President and Chief Sustainability Officer.

Materiality Analysis

1. Updated Materiality Matrix and Topics

Following the revalidation exercise, we found that all 15 material topics in 2022 remain relevant to our business. As we continue to observe and assess our business approach and stakeholders' priorities, we renamed one topic and added one new topic to reflect the significance of impact and the importance.



Material Topics



2. Movement of Material Topics

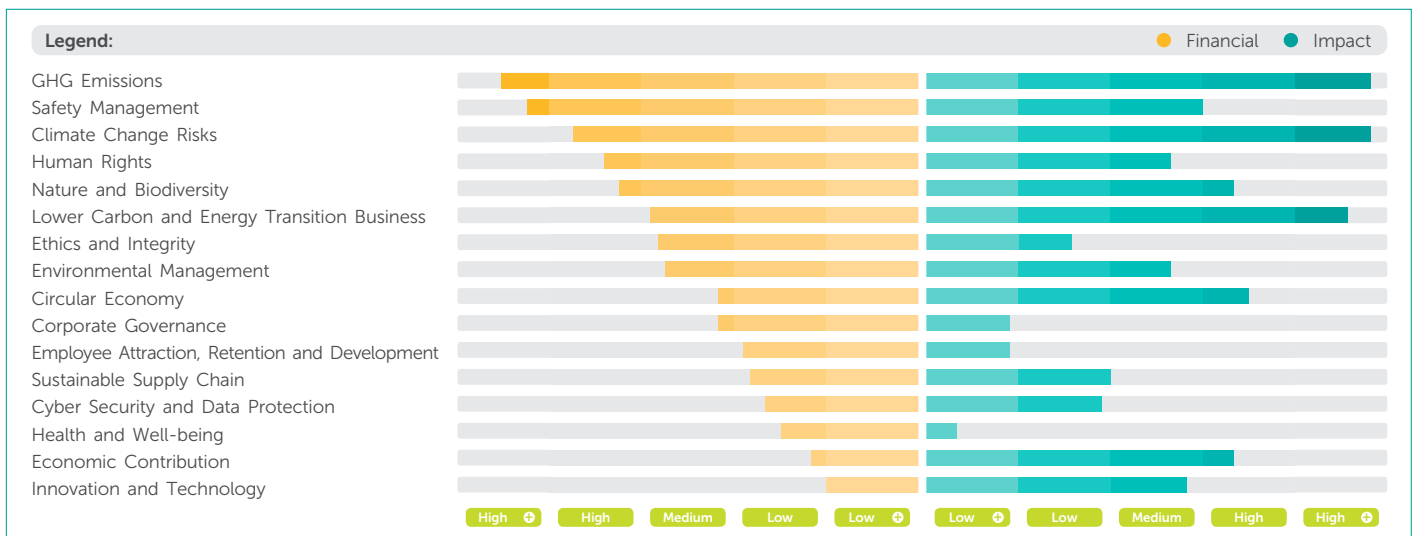
In the pursuit of achieving net zero carbon emissions by 2050, we witnessed the shift in stakeholders' focus and changes to the prioritisation of these material topics as we continue adapting our business to the evolving business landscape.

We undertook various efforts in the areas of Nature and Biodiversity, Sustainable Supply Chain and Innovation and Technology. These efforts included a Memorandum of Understanding with Malaysia Forest Fund, detailed discussions and innovation showcases at the inaugural Energy Asia conference, the launch of the Methane Leadership Programme, as well as the innovation challenges of Race2Decarbonise and FutureTech.

3. Double Materiality

The concept of double materiality refers to how information disclosed by the company can be material both in terms of its implications for the company's financial performance, as well as the company's impact on stakeholders and the physical environment. As the demand for transparent and comprehensive reporting continues to grow, the double materiality concept serves as one of the methods to communicate on our sustainability performance. It aligns with the broader concept of interconnectedness of financial and sustainability matters.

Our double materiality analysis utilises diverse external data sources, such as regulatory filings, news articles and social media. We identify emerging environmental regulations, societal concerns and investor priorities using a data-driven platform. This approach guides our responsive strategy toward stakeholder issues, ensuring that PETRONAS aligns with evolving expectations.



Similar to 2022, Greenhouse Gas (GHG) Emissions, Safety Management and Climate Change Risks remained top of the list of our material topics. Managing our GHG emissions is a critical focus as we contribute towards action on climate change and at the same time prepare for potential implementation of carbon pricing and the introduction of other regulation, including the European Union Carbon Border Adjustment Mechanism (CBAM). Effective safety management has always been a top priority in our operations. The effects of climate change has increased the risk towards our assets with the potential to lead to supply chain disruptions and increased insurance costs, among others.

The 16 material topics in 2023 are as follows:

GHG GHG Emissions

We consistently enhance our measurement and quantification methods to effectively address GHG emissions from our operations, thereby reducing the impact on the environment. We also intensify collaboration with stakeholders across the energy ecosystem to gain a deeper comprehension of energy utilisation within our company and across our value chain.



SM Safety Management

Prioritising safe operations, means providing a secure and productive working environment for our employees and contractors, free of incidents and accidents.



CCR Climate Change Risks

We acknowledge the challenges posed due to climate change, both in terms of its physical impacts and the transition to a lower carbon economy. We are actively exploring measures to adapt and build resilience, while also implementing governance systems in line with the Task Force on Climate-related Financial Disclosures recommendations to effectively identify and manage climate-related risks and opportunities.



HR Human Rights

We are committed to respecting human rights in all our business activities and relationships, issues such as forced labour, human trafficking, modern slavery, fair working conditions and non-discrimination are monitored to ensure that we are operating responsibly wherever we are. In April 2024, we launched our Human Rights Policy formalising and thereby, strengthening our commitment to human rights.



Material Topics

NB Nature and Biodiversity

As climate and nature issues are intertwined, it is important that our GHG emissions abatement and growth of cleaner energy solutions are in unison with the conservation and protection of nature and biodiversity. The PETRONAS Nature and Biodiversity Position guides our plans and the operationalisation of our recently established Nature and Biodiversity Centre of Excellence. We established the Nature and Biodiversity Centre of Excellence and plan to assess our readiness to align with Taskforce on Nature-related Financial Disclosures (TNFD) recommendations.

Capitals: 	Key Risks: 	Key Stakeholders:
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LCT Lower Carbon and Energy Transition Business

Our Net Zero Carbon Emissions by 2050 Pathway informs our lower carbon and energy transition activities and ventures. This includes prioritising natural gas and exploring opportunities in renewable energy, hydrogen, green mobility, specialty chemicals and biofuels. Our aim is to strike a balance between energy security, affordability and sustainability, leveraging on the latest policies, goals, measurement tools and technologies to facilitate this transition.

Capitals: 	Key Risks: 	Key Stakeholders:
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EI Ethics and Integrity

We stand resolute against any form of corruption or unethical conduct. This commitment extends throughout our entire value chain, encompassing employees, partners, suppliers, contractors and all intermediaries. We actively promote responsible business practices and strict adherence to established standards and guidelines. The PETRONAS Anti-Bribery and Corruption Policy and the PETRONAS Code of Conduct and Business Ethics (CoBE) serve as our guiding principles, and sets the bar for ethical business conduct.

Capitals: 	Key Risks: 	Key Stakeholders:
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EM Environmental Management

Environmental management is essential in addressing our impact on the physical environment. The environmental effects of our operations, emphasising sustainable resource management, emissions reduction, waste and water practices and responsible asset decommissioning.

Capitals: 	Key Risks: 	Key Stakeholders:
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CE Circular Economy

Our goal is to minimise the environmental footprint of our product by minimising waste and cutting down material usage. We are committed to combating plastic pollution through recycling and reusing, fostering innovation and reducing waste. Embracing the circular economy model, we aim to establish a closed-loop system where waste serves as input for new processes. Our focus is on building a sustainable future, preserving natural resources and lowering our carbon footprint while generating value.



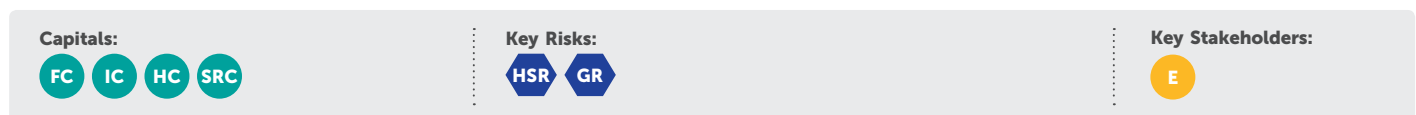
CG Corporate Governance

We uphold our commitment to maintaining the highest standards of corporate governance, recognising its crucial role in enhancing business resilience and fostering long-term growth. Ensuring the highest level of governance across structures, policies and strategies relating to sustainability remained one of our top priorities.



EAR Employee Attraction, Retention and Development

Investing in skilled talent is vital for long-term business resilience in a rapidly changing energy landscape and ensuring a just transition. We aim to attract and retain top talent through flexible work arrangements, opportunities for growth and market-based compensation based on capability, experience and performance. We are committed to fostering an inclusive workplace where everyone is treated equally.



SC Sustainable Supply Chain

We pay close attention to our overall supply chain management, product stewardship and procurement as these mitigate risks that impact the environment, society and economy. This ensures the sustainability and safety of our products throughout the entire life cycle. To improve supply chain resilience, we continuously strengthen our efforts to nurture and support local suppliers where possible and applicable. We also share global work practices with regional and local entities to enrich the local economy.



Material Topics

CDP Cyber Security and Data Protection

Cyber security and data protection play pivotal roles in safeguarding organisations against a myriad of cyber threats and ensuring the integrity and confidentiality of sensitive information.

<p>Capitals:</p> <p>FC HC MC SRC IC NC</p>	<p>Key Risks:</p> <p>GR ER LR TR HSR</p>	<p>Key Stakeholders:</p> <p>FG SG HG C E SIC GIP IO</p>
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HW Health and Well-being

Ensuring the safety and well-being of all employees and contractors is paramount to us, extending our commitment to fostering a culture of health and safety within our workforce and the broader community. Through comprehensive risk assessments, robust controls and a variety of health and wellness programmes, we proactively address overall well-being of our employees.

<p>Capitals:</p> <p>FC HC MC SRC</p>	<p>Key Risks:</p> <p>HSR HCR SR ER</p>	<p>Key Stakeholders:</p> <p>C E CN</p>
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EC Economic Contribution

Our commitment lies in fostering both business growth and community prosperity. We achieve this by creating economic value through our offerings, paying taxes and wages and providing opportunities for society. During crises, we extend assistance through financial aid, volunteer work and efforts. Our tax practices adhere strictly to local regulations, ensuring transparency and responsibility.

<p>Capitals:</p> <p>FC HC IC MC SRC</p>	<p>Key Risks:</p> <p>MR FLR HSR HR HCR GR SR TR ER</p>	<p>Key Stakeholders:</p> <p>FG SG SIC</p>
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IT Innovation and Technology

We acknowledge the importance of innovation and technology in delivering our commitment. We promote an innovative culture that encourages creative thinking in both product design and operations. This boosts our competitive edge and enhances our brand reputation. Through advanced technologies and digital innovations, we develop new business processes that elevate customer and stakeholder experiences. Our approach integrates innovation and technology across all operations and services to fuel our business growth and expand our offerings.

<p>Capitals:</p> <p>FC HC IC MC NC</p>	<p>Key Risks:</p> <p>MR FLR HSR HR HCR SR TR</p>	<p>Key Stakeholders:</p> <p>C E M GIP</p>
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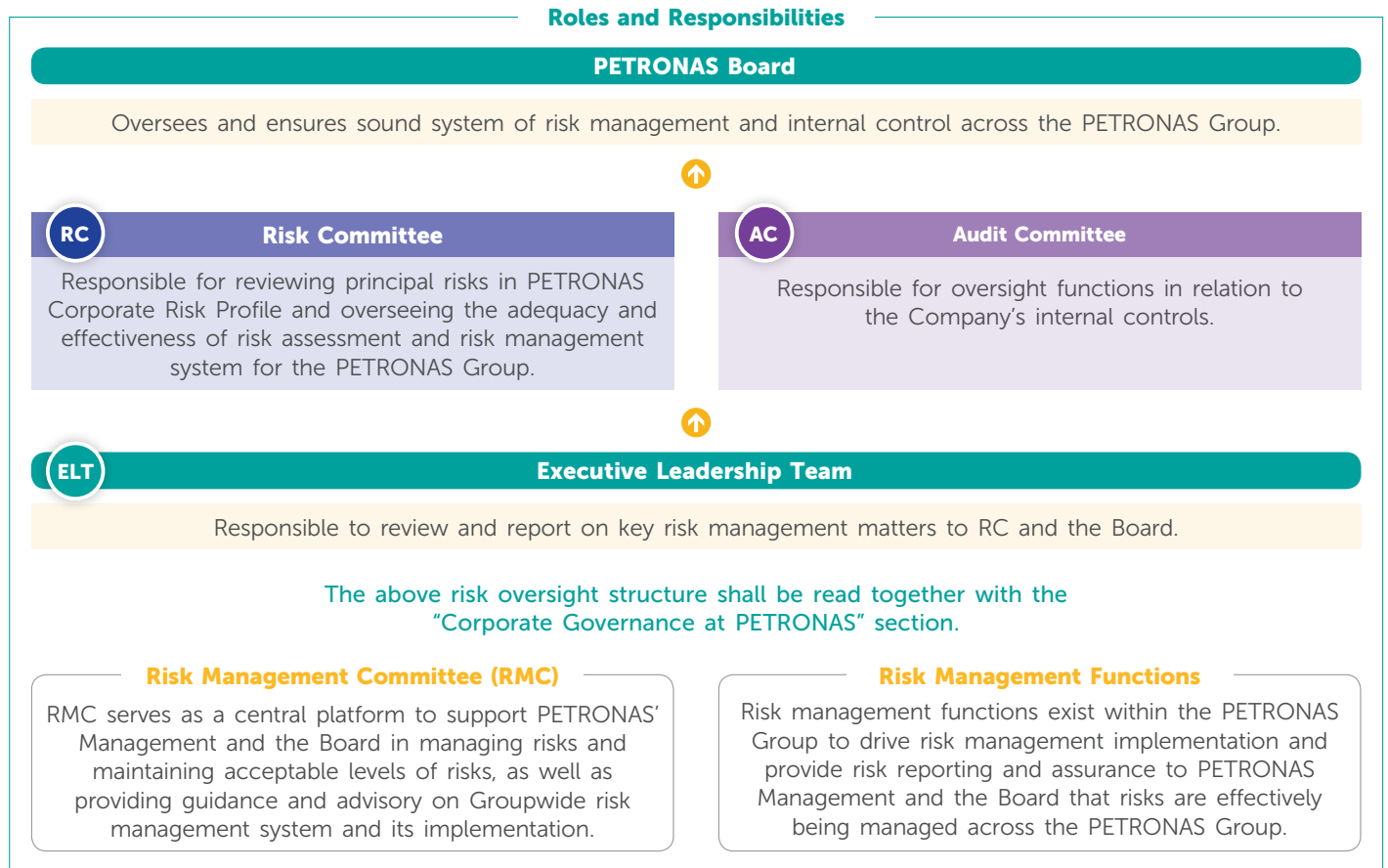
Risks Linked to Creating Value

At PETRONAS, we recognise that navigating volatile market conditions, technological disruptions and the complexities of the energy transition requires a robust and dynamic approach to risk management. Our commitment to identifying, assessing and mitigating risks is critical to delivering our strategies and protecting our assets and operations. We consider risks that can impact our business ambitions and strategic objectives. This approach allows us to meet our stakeholders’ expectations while steadfastly progressing PETRONAS’ strategies and contributing positively to the global energy landscape.

Robust Risk Management Practices

PETRONAS has a risk management and internal control system that is applied across the Group to manage risk exposure and capitalise on opportunities to create sustainable value. This system provides reasonable but not absolute assurance against material misstatement or loss.

The PETRONAS Board, along with the Risk Committee (RC), the Audit Committee (AC) and the Executive Leadership Team (ELT), oversee the adequacy and effectiveness of our risk management and internal control system. In addition to these committees, risk oversight is supported by the Risk Management Committee (RMC) and respective risk management functions.



How We Manage Risks

The PETRONAS Risk Policy provides a foundation for risk management in PETRONAS, including promoting the implementation of best practices in risk management and risk-based decision making, as part of value protection and value creation process for the organisation. A risk-based decision making approach provides a balanced view of exposures to achieve business objectives, thus fortifying our stance as a risk resilient organisation.

Risks Linked to Creating Value

Complementing our risk policy is the PETRONAS Resiliency Model which provides an integrated approach for effective risk management throughout the organisation. It focuses on three areas of business resilience, namely Enterprise Risk Management, Crisis Management and Business Continuity Management.

PETRONAS Risk Policy and PETRONAS Resiliency Model

➤ **PETRONAS is committed to becoming a risk resilient organisation.**

➤ **PETRONAS shall continuously strive to implement:**

- Risk management best practices to protect and create value within the set boundaries.
- Risk-based decision-making by providing a balanced and holistic view of exposures to achieve business objectives.

➤ **Managing risk is everyone's responsibility.**

Enterprise Risk Management

Structured and holistic approach to identify, assess, manage and monitor risks. The aim is to REDUCE the likelihood and impact of identified risks to enhance the organisation's ability to achieve its strategic objectives.

Crisis Management

Comprehensive set of processes that aims to prepare the organisation to RESPOND and manage crises to protect people, environment, asset and reputation.

Business Continuity Management

Holistic management process that aims to build the capability of an organisation to RECOVER and continue delivering products or services at acceptable predefined levels following a prolonged disruptive incident.

Enterprise Risk Management

Enterprise Risk Management (ERM), governed by the PETRONAS ERM Framework, is a systematic process of identifying, assessing, treating, monitoring and reviewing of risks. It supports our ability to reduce the likelihood and/or mitigate risks that may impact our business objectives through the implementation of mitigations and monitoring of risk profile and risk appetite.

In intensifying our efforts to be a risk-resilient organisation, risk profile and the corresponding risk mitigations and key risk indicators are monitored at both corporate and respective business levels across the Group.

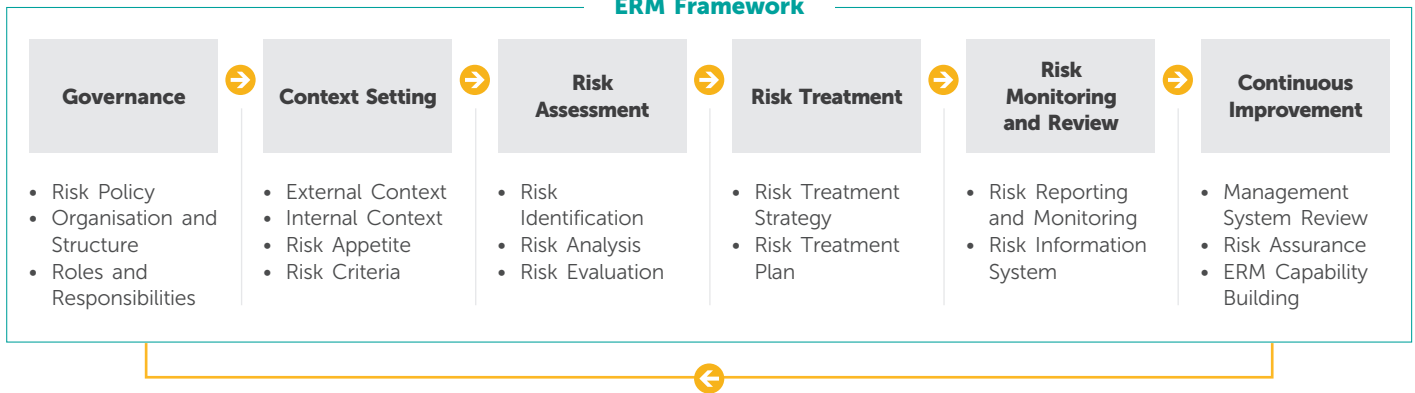
Our risk appetite guides strategic decisions, reflecting our position, propensity and willingness to accept and manage risks within tolerable limits in strategic, financial, operational and reputational areas while complying with legal and regulatory standards. The risk appetite for each area is determined by its respective tolerance and threshold levels.

At the corporate level, the PETRONAS Corporate Risk Profile and Risk Appetite are monitored and reported quarterly to the RMC, ELT, RC and Board.

Additionally, we also conduct risk assessments at key decision points to:

- Ensure that decisions impacting our business operations and strategies are made with careful consideration of risk-reward trade-offs.
- Create risk-reward conversations at respective decision platforms and/or approving authority.

ERM Framework



Crisis Management and Business Continuity Management

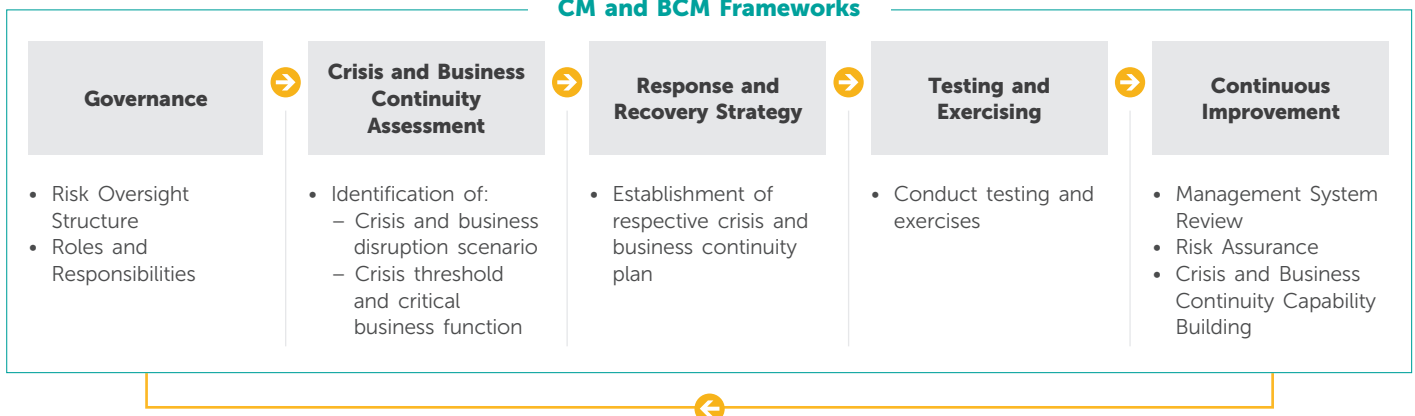
Crisis Management (CM) and Business Continuity Management (BCM) are integrated processes, governed by PETRONAS CM and BCM Frameworks, which aim to prepare our domestic and international operations to respond to crises and recover from any business disruptions.

Under CM, we adopt a three-tiered response protocol that demarcates the roles and responsibilities of emergency site management, operating unit management, corporate and internal or external response agencies and/or authorities. This allows us to focus on responding to crises and minimising the impact to the business.

Meanwhile, under BCM, we focus on building our capabilities to recover and restore critical business functions to continuously deliver products or services at acceptable predefined levels and minimise disruptions to stakeholders.

In promoting continuous improvement and capability building, we conduct testing and exercises on crisis and business disruption scenarios periodically to ensure the effectiveness of our response and recovery strategies, as identified in the respective crisis and business continuity plan.

CM and BCM Frameworks



Risks Linked to Creating Value

Risk Management in 2023

We managed our risk across the following material risks which are crucial to our business and nature of operations. The risks discussed below could have a material effect, directly or indirectly, on the implementation of our strategy and business operations.

MR Market Risk

What It Means

PETRONAS Group performance is exposed to macroeconomic headwinds, geopolitical tensions, currency swings and supply fluctuations from key oil producers, contributing to volatility in commodity prices.

Additionally, shifts in customers' preferences and government policies towards cleaner and renewable energy sources and sustainable products driven by the decarbonisation agenda stemming from climate change will potentially displace demand for traditional oil and gas products, requiring PETRONAS to diversify into new areas beyond our core business.

Impact on Value

- **Price and Demand:** Escalating geopolitical tensions and slowdown in economic activities in major economies have influenced fluctuations in commodity prices and customers' demands, impacting our project viability, financial performance and shareholder returns.
- **Currency Fluctuations:** As a Malaysian company with global operations and market presence, movement in the major currencies against the Malaysian Ringgit could significantly impact our capital investment and long-term financial returns.
- **Increased Competition:** Increasing attention on climate change and rising expectations to transition toward lower carbon economy would continue to influence customer preferences leading to increased competition in the energy industry, lower returns for traditional oil and gas businesses and thereby affecting our value chain.
- **Fulfilment of Contractual Obligations:** The changes in market dynamics would affect our revenue, cost of operations and counterparties' ability to deliver their contractual obligations to the Group as commercial arrangements are pegged to commodity prices. Consequently, this could impede our growth prospects and have a long-term impact on the sustainability of our business operations.

Impact on Capitals

- **Financial Capital:** Changes in market environment can disrupt steady returns and challenge the Group's future growth and business sustainability.
- **Manufactured Capital:** Challenges to identify assets that form the core engine to support current and future operating models may be at risk due to changing market demands and regulations.
- **Intellectual Capital:** Rapid technological and market shifts can render existing intellectual capital redundant.
- **Natural Capital:** Changes in market environments and outlook may render prospective oil and gas investments and asset life extension efforts uneconomical.

Mitigation Strategies

- Optimise resource allocation and ensure adaptability to market changes by undertaking regular strategic reviews and resource prioritisation.
- Drive proactive and timely intervention through continuous monitoring and review of portfolio composition and counterparty performance.
- Protect value and margin against adverse price movement by undertaking hedging activities.
- Implement prudent financial risk management in accordance with principles in PETRONAS Financial Policy and PETRONAS Financial Standards.
- Advocate our business strategies and instill awareness, ensure buy-ins and obtain support by conducting engagement with stakeholders, including governments, banks, financiers and investors.

Tactical Opportunities

- The volatile commodity market provides opportunities for PETRONAS to actively pursue trading opportunities and provide additional value by capturing pockets of favourable volatility. Furthermore, heightened ESG awareness provides an opportunity for the inclusion of ESG-linked products in hedging and trading activities in line with the global energy market's trajectory towards sustainability.
- Shifts in customers' preferences create opportunities for PETRONAS to strategically diversify to capture new market, including venturing into cleaner energy business segments and offering other ESG-related product offerings.
- Geopolitical uncertainties may alter business activities and open avenues into new markets, supply bases and partnerships.
- Accelerating utilisation of digital and cost management tools to mitigate the impact of price volatility also creates trading opportunities for PETRONAS to generate value.

Risk Movement

Slowdown in economic activities attributed to persistent interest rate hikes in the US and Europe as well as slow recovery of China's economy amid property crisis and weak manufacturing activity; and escalated geopolitical tensions such as in the Middle East and Ukraine have created uncertainties in the value chain and impacted the supply and demand for our products. These factors will continue to evolve, and any significant event will have direct impact to our business. We will continue to manage this risk through the approved mechanisms and monitor the key signposts for early intervention.

Material Topics:



Stakeholders:



Capitals:



FLR Financial Liquidity Risk

What It Means

Our business activities require significant capital investments, sufficient operating cash flows and/or sufficient external financing for operations and growth projects. Influencing factors include market risk, strategic reviews which focuses on ESG and climate change, and changing operational and stakeholder requirements.

Impact on Value

- **Affordability and Capital Availability:** Our inability to maintain optimum liquidity position can affect business agility and future growth, as well as our ability to meet shareholders' expectations.
- **Credit Rating and Borrowing:** Credit rating downgrades and non-compliance to ESG and climate change requirements could increase our borrowing costs and limit our access to capital markets.
- **CAPEX Concentration:** Increase in capital allocation in New Business and decarbonisation, may adversely impact our business portfolio and revenue stream due to delay in our return realisation that can be attributed to lower return compared to traditional oil and gas, ability to attain the right talent and timely deployment of technology.

Impact on Capitals

- **Financial Capital:** Regulatory changes, market conditions and stakeholder demands can impact our financial and liquidity position, affecting our ability to ensure sustainable cash flow, gain access to financing and safeguard long-term value creation for stakeholders.

Mitigation Strategies

- Strengthen execution and implement prudent financial risk management in accordance with principles in PETRONAS Financial Policy and PETRONAS Financial Standards.
- Fortify management oversight on overall liquidity management strategies to achieve financial objectives and support the Group's business growth including asset and liability management strategies through the establishment of Asset Liability and Liquidity Management Committee.
- Drive proactive and timely interventions through regular monitoring and reviewing of our liquidity position against our risk appetite on liquidity and indebtedness levels.
- Protects value and margin against adverse price movement by undertaking hedging activities.
- Improve PETRONAS' responsiveness in safeguarding the Group's financial sustainability by implementing relevant liquidity crisis management and business continuity measures aligned with the established Liquidity Risk Contingency Protocol.
- Ensure readiness for external funding and borrowing through continuous engagements with stakeholders, including governments, banks, financiers and investors.

Tactical Opportunities

- Increasing awareness and financier's commitment towards energy transition and net zero carbon emission pledges demonstrated through establishment of alliances such as the Net Zero Banking Alliance provides opportunity for PETRONAS to leverage on external funding sources in pursuing cleaner energy transition solutions.

Risk Movement

Financial Liquidity Risk indicators remain stable despite market volatility and varying degrees of stakeholders' requirements which can be attributed to effective implementation of the existing controls and mitigations including strict capital discipline and robust portfolio management.

Material Topics:



Stakeholders:



Capitals:



Risks Linked to Creating Value

LR Legal and Regulatory Risk

What It Means

As a global energy company, PETRONAS navigates complex legal and regulatory landscapes, with the need to adhere to diverse laws with extra-territorial effects, namely ethics and integrity, including anti-bribery and corruption, sanctions, export control, competition and data privacy. Our business also requires adherence to a multitude of regulatory requirements at the operational level. We are also exposed to various claims, suits and legal proceedings involving shareholders, labour, issues related to intellectual property, climate change, tax and other matters. Our large workforce may unintentionally or intentionally not comply with regulatory and compliance requirements, impacting the broader organisation, including operations, financials and reputation.

Impact on Value

- **Litigation Uncertainties:** Adverse litigation and dispute resolution outcomes can negatively affect our operations, financial condition and reputation.
- **Emerging Regulations:** The accelerated pace of energy transition exposes us to the need to adapt and comply with emerging regulations and policies which could increase compliance costs and impact our license to operate.

Impact on Capitals

- **Financial Capital:** Legal and regulatory breaches and inability to meet regulatory requirements can lead to financial penalties, reduced access to external financing and increase our cost of doing business.
- **Social and Relationship Capital:** Legal and regulatory breaches can damage relationships with key stakeholders and erode trust and our credibility.
- **Human Capital:** Non-compliance to critical and operational legal areas may impact our position as a favoured employer and potential loss of talents if liable from committed offense.

Mitigation Strategies

- Strengthen legal and regulatory governance by implementing governance, compliance and legal frameworks such as the PETRONAS Code of Conduct and Business Ethics and Legal Compliance Framework, including in the area of ethics and integrity.
- Increase awareness and competency of our workforce through regular communications, awareness and training sessions on critical and operational legal areas.
- Drive proactive interventions through regular monitoring and reviewing of our legal and regulatory and anti-corruption compliance against our risk appetite.
- Implement identified action plans to realise our Net Zero Carbon Emissions by 2050 Pathway with specific short-, medium- and long-term targets and manage other ESG-related regulatory impacts on business operations.
- Promote the highest standards of integrity and instill the culture of "courage to act" and openness in the conduct of our business and operations through implementation of effective whistleblowing management.

Risk Movement

Legal and Regulatory Risk remains inherent to our business but is managed through implementing the Legal Compliance Framework and PETRONAS Integrity Management System. Additionally, we regularly review the relevant legal compliance controls to ensure adherence to current laws and regulations.

Material Topics:



Stakeholders:



Capitals:



SR Sustainability Risk

What It Means

PETRONAS recognises the scientific consensus on climate change and the rising expectations to transition to a lower carbon economy from our stakeholders at global, local and organisational levels. In response, we have pledged a commitment towards our Net Zero Carbon Emissions by 2050 Pathway and focused efforts on embedding sustainability into our strategies, business plans and operations. With the accelerating pace of the energy transition, we are exposed to various challenges and scrutiny including adapting and complying with emerging regulations and policies, and regional variations of such, while ensuring our efforts are done in a just and equitable manner, and with minimal impact to the environment, including nature and biodiversity, in the areas where we operate.

Impact on Value

- **Capital Market Access:** Inability to meet financiers' and investors' Environmental, Social and Governance (ESG) requirements for their financing decisions may limit and constrain our access to capital, affecting our overall growth and competitive edge.
- **Competitive Standing:** Ineffective ESG management impacting ability to become counterparty of choice and inability to capture opportunities on energy transition timely could diminish our competitive standing in the energy industry, impacting our business value chain.
- **Energy Transition Challenges:** Inability to offer competitive low carbon energy solutions may impact our contributions to Malaysia's national energy transition efforts, affecting its energy security, affordability and sustainability.

Impact on Capitals

- **Financial Capital:** Delivering our commitments on climate change and developing low carbon solutions, exposes us to higher capital and additional operating costs to implement the necessary measures.
- **Manufactured Capital:** Physical impacts of climate change may cause damage to our assets and disrupt operations.
- **Social and Relationship Capital:** Inability to demonstrate credible climate action, including transitioning to low carbon business in a just and equitable manner, respecting human rights and minimising environmental impact where we operate could result in eroded trust and damage to our reputation.
- **Human Capital:** Transitioning to low carbon business and heightened competition in the specific new field will require specialised skilled individuals that need to be acquired as part of our talent acquisition and development strategy. The inability to promote a 'just transition' and promote human rights may detrimentally affect operations and enterprise reputation.
- **Natural Capital:** Inability to implement credible actions on nature and biodiversity as part of our Net Zero Carbon Emissions by 2050 Pathway could affect our long-term resilience.

Mitigation Strategies

- Implement identified action plans to realise our Net Zero Carbon Emissions by 2050 Pathway with specific short-, medium- and long-term targets, supported by internal governance, monitoring and dedicated resources, including investment into new skills through training and formal vocational and tertiary education.
- Execute business plans through Gentari, which offers renewable energy, hydrogen and green mobility.
- Systematically elevate our business activities according to international standards for human rights through the establishment of a Human Rights Policy and associated implementation.
- Increase our capital expenditure to scale up decarbonisation efforts and lower carbon energy solutions.

Tactical Opportunities

- Rising expectations to transition to a lower carbon economy offers business prospects in areas including biofuels, specialty chemicals, circular economy, hydrogen and renewable energy value chains.
- Deployment of emissions reduction and lower carbon solutions present opportunities for new partnerships, collaborations and investment opportunities.
- Exploring new revenue streams in carbon capture and storage and energy efficiency solutions.

Risk Movement

Continued heightened expectations from investors, customers and regulators increases scrutiny on energy companies to demonstrate tangible emission reductions and business model changes. In response, we have intensified our efforts to communicate and demonstrate our energy transition journey. Throughout the year, we remain committed to implement greenhouse gas reduction projects to meet our short-term targets, grow our cleaner energy solutions business through Gentari, and strengthen our internal governance processes and capacity for sustainability including the establishment of a new PETRONAS Carbon Commitment, Nature and Biodiversity Centre of Excellence and PETRONAS Human Rights Policy.

Material Topics:



Stakeholders:



Capitals:



Risks Linked to Creating Value

HSR Health, Safety, Security and Environmental (HSSE) Risk

What It Means

PETRONAS business operations expose us to a variety of health, safety, security and environmental (HSSE) risks stemming from challenges related to project execution, technical integrity and regulatory compliance, as well as security threats such as physical attacks, criminality, civil unrest and maritime incidents. Additionally, the accelerated pace of technological advancement has heightened security threats from non-conventional sources such as drones and the evolution from cyber to physical security threats. These risks require vigilant management of reputation, assets, people, including our employees, contractors and partners and natural resources.

Impact on Value

- **Operational Incidents:** Any HSSE incidents that result in injuries, loss of life or damage to assets and the environment may disrupt our operations, impacting our reputation and rectification costs.
- **Security Threats:** Security threats can adversely affect our business operations, the safety of our personnel and assets and cause environmental harm.

Impact on Capitals

- **Financial Capital:** HSSE incidents can result in penalties, damage of assets and operational disruptions, impacting our financial position.
- **Social and Relationship Capital:** HSSE incidents can erode stakeholders' trust and damage our reputation.
- **Natural Capital:** Inability to contain HSSE incidents can damage the environment, challenging our commitment to be a responsible steward of natural resources.
- **Human Capital:** HSSE incidents can result in personnel injuries, loss of life and cause reputational damage to our status as a favoured employer.
- **Manufactured Capital:** HSSE incidents may damage and impact security of our assets.

Mitigation Strategies

- Strengthen HSSE governance with dedicated HSE and Security Management Systems, supported by the HSE Mandatory Control Framework (MCF) and Minimum Security Standards (MS2).
- Enhance competency and assurance of our employees, contractors and partners leveraging digital solutions and technology for operational discipline.
- Strengthen competency of our security practitioners through the establishment of Security Academy.
- Enhance the culture of accountability by reinforcing positive behaviours and promoting a collective commitment to HSE excellence through the relevant measures and tools.
- Optimise security readiness through continuous digital protective security monitoring and predictive analysis platforms.
- Strengthen organisational resiliency through implementation and periodic review of the relevant HSSE crisis management measures.

Risk Movement

HSSE Risk remains inherent to our business but is managed through continuous enhancement of our efforts, processes and approaches to mitigate major incidents and comply with legal requirements to address evolving security threats which aim to safeguard our people, asset, reputation and the environment. This includes strengthening our Accountability and Behavioral Reinforcement programme, implementing security exercises and drills and enhance management oversight through Management HSE visit to nurture Generative HSSE culture.

Material Topics:



Stakeholders:



Capitals:



GR Geopolitical Risk

What It Means

PETRONAS' global footprint exposes us to various political, legal and fiscal developments at the locations where we operate. Developments in these areas have the potential to directly or indirectly impact our commercial and operational strategies, as well as our financial position. Our global business activities are subjected to regulations and directives from states, national and host governments concerning limitations on production volumes and exports, pricing and trade policies, local content prioritisation, environmental protection controls and possible nationalisation of assets, expropriation and cancellation rights. Additionally, the risk of armed conflicts and civil unrest may influence asset review and reprioritisation.

Impact on Value

- **Operational Disruption and Contractual Changes:** Diverse political and legal environments, coupled with geopolitical crises that can lead to disruption in business operations and changes in contractual terms and agreements that would impact our financial stability and growth potential.

Impact on Capitals

- **Financial Capital:** Limited attention to geopolitical developments may subject our business to penalties and litigations, disrupt our business operations, impacting our cash flows and financial position.
- **Manufactured Capital:** Escalation of geopolitical incidents may cause disruptions in the supply chains and damage our assets in the affected locations.
- **Human Capital:** Escalation of geopolitical incidents may compromise safety and security of our employees in the affected locations.
- **Social and Relationship Capital:** Inability to manage key relationships in foreign countries, observe and adhere to host and local authorities' requirements may damage our reputation, erode stakeholders' trust and affect our license to operate.

Mitigation Strategies

- Execute effective and robust country risk management by conducting risk assessments and due diligence in supporting our decisions on international investments.
- Strengthen organisational resiliency through implementation and periodic review of the relevant crisis management and business continuity measures.
- Drive proactive exposure management through periodic monitoring and reviewing of geopolitical landscapes and our investment portfolio and concentration against our risk appetite.
- Improve the quality of life and socio-economic outcomes for communities nationwide and in the countries where we operate by implementing relevant social programmes.

Tactical Opportunities

- Shifts in political landscapes are altering energy flows, opening opportunities in non-traditional markets to bridge supply-demand gaps and enhance energy security.

Risk Movement

Geopolitical risk remains uncertain amidst the dynamic and volatile geopolitical landscape, including at countries where PETRONAS has operations. This risk is being managed through various controls and intervention plans to help us address and navigate through the evolving and dynamic business landscapes.

Material Topics:



Stakeholders:



Capitals:



Risks Linked to Creating Value

HR Hydrocarbon Reserves and Resources Risk

What It Means

Our ability to supply oil and gas depends on finding and effectively managing sufficient reserves and resources to meet our commitments. This involves exploration success, project maturation, reservoir performance, asset acquisition or reprioritisation, and commercial factors. However, our exploration activities face technical challenges and limited information, while production fields contend with issues like declining pressure and equipment reliability. Additionally, changes in policies can also affect our asset value.

Impact on Value

- **Supply Shortfalls:** Insufficient supply can lead to third party sourcing at a premium cost or otherwise failure to meet customer demands, resulting in contract non-performance, loss of trust and market share erosion.
- **Project Management Challenges:** Ineffective management of exploration, projects, field performance and asset acquisition or reprioritisation can lead to project delays, deferrals or cancellations, increasing costs and reduced revenue.

Impact on Capitals

- **Financial Capital:** Inability to monetise resources can jeopardise the Group's financial stability.
- **Intellectual Capital:** Challenges in developing and embedding new technologies and innovations can result in low-value and underperforming assets.
- **Manufactured Capital:** Unresolved technical challenges may impact our ability to effectively manage reserves and resources, reduce asset efficiency and disrupt operations.

Mitigation Strategies

- Strengthen resources path to monetisation through execution of area development plan, acceleration of resources maturation and increase reserves base across the funnel according to established plan.
- Improve reservoir and field performance through execution of robust operational excellence programmes and adopt value improvement practices for field development leveraging technology and digitalisation.
- Drive production sustainability efforts, including leveraging carbon capture and storage technology development for high-carbon dioxide fields.
- Establish robust petroleum resource management by conducting the Annual Review of Petroleum Resources, as per the reserves and resources management system requirement for stringent monitoring.

Tactical Opportunities

- Technical challenges prompt us to form strategic partnerships with industry players to co-create solutions, sharing risks and rewards to boost the local economy.
- Leveraging fit-for-purpose technologies will not only improve our projects and assets efficiency but may also improve their value.

Risk Movement

Hydrocarbon reserves and resources indicators remain stable, attributed to our focused interventions on ensuring effective management of reserves and resources to meet our contractual commitments.

Material Topics:



Stakeholders:



Capitals:



TR Technology Risk

What It Means

Our digital footprint is continuously expanding through the implementation of various digital solutions in both information and operational technology domains, enabling new opportunities and enhancing business processes. The increased reliance on digital solutions in our business processes can make our organisation more vulnerable to cyber attacks. These attacks are becoming more sophisticated, exploiting vulnerabilities not only in our digital infrastructure but also in our broader business value chain. The attacks, often manifested through identity theft and unauthorised third-party access, pose significant threats to the confidentiality, integrity and availability of our data and systems. In addition, the rapid pace of technological advancements presents a risk of obsolescence, challenging our long-term competitiveness.

Impact on Value

- **Cyber Security Threats:** Cyber attacks, if not detected early, can disrupt our operations, compromise safety of our staff, and result in legal and regulatory fines, damaging our reputation.
- **Technological Obsolescence:** Ineffective development and deployment of technology can materially impact our strategic delivery and operational excellence.

Impact on Capitals

- **Manufactured Capital:** Inability to innovate and adapt to technological advancements timely may cause disruptions to our operations.
- **Intellectual Capital:** Ineffective innovation and adaptation to technological advancements may render intellectual assets to become obsolete.
- **Financial Capital:** Inability to innovate and adopt new technologies may affect our competitiveness and financial returns.
- **Social and Relationship Capital:** Inability to implement adequate cyber defence measures may damage our reputation and erode stakeholders' confidence.

Mitigation Strategies

- Strengthen robust digital and ICT governance, focusing on Cyber Security, Enterprise Architecture and Enterprise Data, including administer and enforce Enterprise Cyber Security Governance Framework, PETRONAS Cyber Security Incident Response Procedure and Cyber Security Ransomware Crisis Management.
- Improve organisational resiliency through implementation and periodic review of the relevant ICT and cyber security crisis management and business continuity measures.
- Increase our competitive advantage through execution of dynamic in-house research and innovation solutions, leveraging PETRONAS Technology Management System.
- Enhance our innovation culture through establishment of innovation platforms for staff to mature innovative ideas and embed technology consideration in investments strategy and decisions particularly for new businesses leveraging technology venture capital arm.
- Protect our innovation and Intellectual Property (IP) through establishment and periodic review of IP policies at enterprise level.
- Establish and ensure availability of capable resources to develop and deploy technology by recruiting top-tier experts for research and development and continuously upskill our researchers.

Tactical Opportunities

- Innovative practices and new technology will nurture an ecosystem that could create value for the organisation, accelerate growth efforts and support decarbonisation initiatives.
- Rapid technological advancements present opportunities for monetisation allowing us to monetise matured technologies and innovative solutions.

Risk Movement

Technology Risk continues to evolve and remains uncertain, reflecting the dynamic operating landscape. Despite the increased sophistication of technological threats, continuous efforts are in place to strengthen technology management and cyber resilience as well as information security through vigilant and innovative implementation of our controls and defense mechanisms. This includes adoption of up-to-date technology and leveraging AI-based solutions to stay abreast of emerging threats and innovations.

Material Topics:



Stakeholders:



Capitals:



Risks Linked to Creating Value

ER Execution Risk

What It Means

Our overall business, financial and operational performance are predominantly dependent on the successful delivery of complex, long-term, capital-intensive projects, maintaining optimal level of asset and technical integrity, providing value added solutions to our customers. Therefore, we are exposed to various challenges including technical issues and disruptions in our supply chain that could impact our ability to deliver on our commitments to the stakeholders.

Impact on Value

- **Project Delivery Delay:** Delays in delivery of capital-intensive projects could adversely impact our business strategy, operations and financial condition.
- **Supply Chain Uncertainties:** Disruptions in the supply of materials and services may lead to operational issues, delay in project execution and affect our commitments and reputation. In addition, the inability to adequately assess and ensure our vendor capability and competency may also affect our project delivery and business operations.

Impact on Capitals

- **Financial Capital:** Ineffective execution of projects and operational discipline can impact our future earnings, cash flows and financial stability.
- **Intellectual Capital:** Lack of innovation in our execution may lead to outdated intellectual property and improper technological application, resulting in economic loss.
- **Social and Relationship Capital:** Operational disruption, product quality and reliability issues, and disruption in supply chain, including challenges from our vendors and partners, may damage our reputation and erode stakeholders' confidence.
- **Manufactured Capital:** Inadequate and improper project execution as well as management of assets and technical integrity may result in a decline in the operational performance and damage our assets and facilities.

Mitigation Strategies

- Execute effective and robust projects and operational activities through implementation of the relevant frameworks and standards for managing projects, plants and facilities, technical designs and specifications and procurement such as PETRONAS Group Project Management System, PETRONAS Asset Management System, PETRONAS Procurement Standard and Plant and Facility Risk Management Guideline.
- Strengthen organisational resiliency through implementation and periodic review of the relevant crisis management and business continuity measures.
- Foster innovative partnerships with Malaysian financial institutions for vendor financing and nurture our local vendors through the identified vendor development programmes.
- Enhance the competency of our employees through the relevant capability development programmes and collaboration with contractors, peers and partners.

Risk Movement

Execution Risk continues to evolve and remain uncertain, given the continued disruptions to supply chain driven by geopolitical events. The risk is managed through the implementation of our robust procurement strategy and business continuity measures that are periodically reviewed to ensure our adaptability to the changing environment.

Material Topics:



Stakeholders:



Capitals:



HCR Human Capital Risk

What It Means

Our people are the most valuable asset in achieving our business objectives, especially in today’s rapidly evolving global energy landscape. Talent attraction, development and retention remain our key challenges in creating a capable workforce of the future, given heightened competition for niche skilled talents. Adapting our approach to creating the right ecosystem, which includes having the right mix of capable talents, mindset and behaviour reinforcement, is essential to ensuring our business remains agile and innovative.

Impact on Value

- **Talent Pipeline:** Inability to attract and retain skilled talent can weaken our talent pipeline and ability to remain competitive.
- **Strategy Delivery:** Inability to create and have the right mix of a capable workforce may affect the timely execution of our strategies and aspirations, leading to potential opportunity loss in mature and developing markets, impacting our long-term sustainability.

Impact on Capitals

- **Human Capital:** Failure to retain our position as an employer of choice may impact our ability to attract and retain talent timely.
- **Social and Relationship Capital:** Failure to retain our position as an employer of choice may impact our reputation, eroding stakeholders’ confidence.
- **Intellectual Capital:** Failure to recruit, develop and align talent requirement with business priorities may impact our capacity to sustain and innovate solutions.
- **Manufactured Capital:** Failure to recruit, develop and align talent requirement with business priorities can lead to suboptimal strategy delivery and operational disruption.

Mitigation Strategies

- Improve our attractiveness as employer of choice through the implementation of a differentiated hiring approach and reposition our Employee Value Proposition.
- Enhance the competency of our workforce to future-proof our talents by intensifying upskilling and reskilling efforts in strategic Capability Development Priorities areas.
- Strengthen and ensure sustainable talent pipeline through education sponsorships and on-the-job training.
- Build a thriving work environment through the implementation of various organisational culture programmes and activities anchored on PETRONAS Cultural Beliefs, Shared Values, and Diversity and Inclusion.
- Enhance leadership capabilities in building leaders of the future through structured assessment and development programmes.

Tactical Opportunities

- Heightened competition for talents also create opportunities for us to establish partnerships with government agencies and learning institutions for access to resources and research and development.

Risk Movement

Human Capital Risk indicators remain stable despite the observed challenges in acquiring, retaining and developing talents, particularly in areas related to core and new business. This can be attributed to our focused efforts to address talent requirements including enhancing our appeal to prospective talents to deliver the energy transition and business strategies.

Material Topics:



Stakeholders:



Capitals:

