

Towards a Greener Financial System

Adaptation and mitigation efforts are key to achieve a climate resilient economy for Malaysia. The economic transition also creates abundant growth opportunities. The financial sector plays a critical role in enabling and supporting the orderly and just transition of the Malaysian economy.

Introduction

During the year, the Bank continued to make steady progress in its efforts to address climate-related risks, in line with our mandates to promote monetary and financial stability, as well as in our own operations. We continue to focus on strengthening the financial sector's climate resilience. Scaling up financing and protection support needed by businesses to reduce their carbon footprint was also given emphasis. We made

further progress in greening our own operations and advancing research to better understand how climate and nature interact with each other and with the financial system and economy.

Over the four years of our climate journey, we have worked to gradually establish the key pillars of climate resilience within the financial sector. These include a framework for classifying assets based on alignment to climate outcomes, regulatory and supervisory expectations on managing climate risks, climate-related disclosure requirements and infrastructure to meet critical data needs. These pillars have helped accelerate efforts by financial institutions to better fulfil their role in spurring an orderly and just transition to a greener economy.

A large number of financial institutions now consider climate change in their operations, risk management and business decisions. This affects how they form strategies, manage risks, carry out processes, and offer products and solutions (Diagram 1). More financial institutions have also started actively engaging their customers on the topic of climate risks and transition plans.

Diagram 1: Progress Observed in the Financial Industry in 2022



Source: Bank Negara Malaysia

Climate Considerations Embedded Across the Bank

The Bank is committed to lead by example. Our Board and senior management provide strategic steer to advance the Bank's climate resilience agenda. This includes providing direction on developing the policy landscape, sharpening research focus, strategising collaboration with regional peers, engaging stakeholders and adopting sustainability in our own practices. The Board and senior management receive regular updates on progress of initiatives related to climate across the Bank, financial industry and wider ecosystem. This is led by the Sustainability Unit, a dedicated function set up to coordinate and drive the Bank's climate initiatives.

The Unit works closely with line departments within the Bank in delivering climate outcomes. This ensures that our overall climate strategy is well-aligned and progresses in a coordinated manner. Issues relating to different aspects of the Bank's response to climate risk are deliberated at the relevant policy committees of the Bank. These include the Financial Stability Committee, Monetary Policy Committee, Operational Management Committee and Management Committee. The Bank expanded our enterprise risk appetite statement to include risks arising from nature-related changes. We also continue to actively engage with central banks and financial regulators at the regional and international levels. This allows us to exchange views and experience on responses to this critical challenge.

Steady Progress in Advancing the Climate Agenda

In 2022, we continued to integrate climate considerations in our core functions (Diagram 2). We issued policy documents to provide clarity on the expectations we place on financial institutions to effectively manage their climate risks. We also supported pilot projects¹ that are being developed

with the industry and relevant government ministries. These are solutions that support the transition to a low carbon economy and build climate resilience. In addition, we continued to engage the industry on preparations to implement climate-related reporting and disclosures.

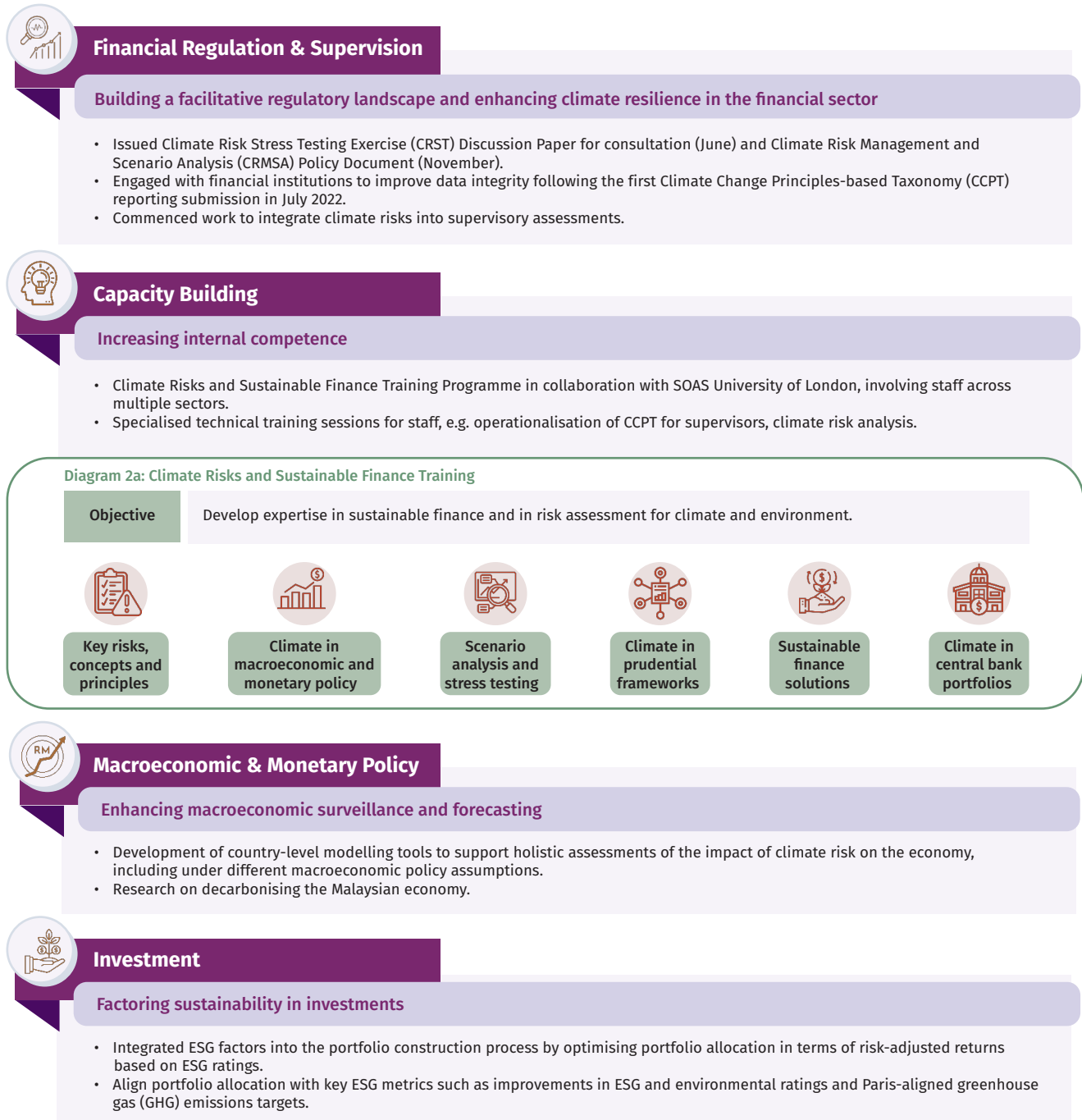
Technical expertise in climate risk is still developing within the Bank. We thus continue to invest resources to build competence of our staff. Knowledge is developed through structured training programmes and knowledge sharing sessions organised with experts from the industry and academia. In 2022, our staff at all levels, including senior management, participated in several such sessions on climate-related topics relevant to the Bank's work and operations. We are also intensifying work to deepen our understanding on areas such as possible impacts of sectoral transition pathways on our economy and financial sector. This will help enhance our understanding on the potential policy steps that can be taken.

The Bank also ramped up efforts to better manage emissions arising from our operations. One example is by exploring energy efficiency measures. We have begun to track sustainability metrics, including our electricity use, water use, and plastic waste. We will continue to enhance the way we approach and measure our emissions. This will also support our current efforts to develop a roadmap to net zero that guides the Bank's actions towards achieving our climate goals. We expect to complete the roadmap in 2023. We continue to raise awareness on our climate initiatives amongst staff in line with a whole-of-Bank approach. This is done via a range of channels, including newsletters, vodcasts and forum posts.

These efforts are in line with the Bank's pledge on our commitments in relation to climate risk management, disclosure and capacity building as a member of the Central Banks and Supervisors Network for Greening the Financial System (NGFS) in supporting the NGFS Glasgow Declaration for the 26th United Nations Climate Change Conference (COP26) in 2021.

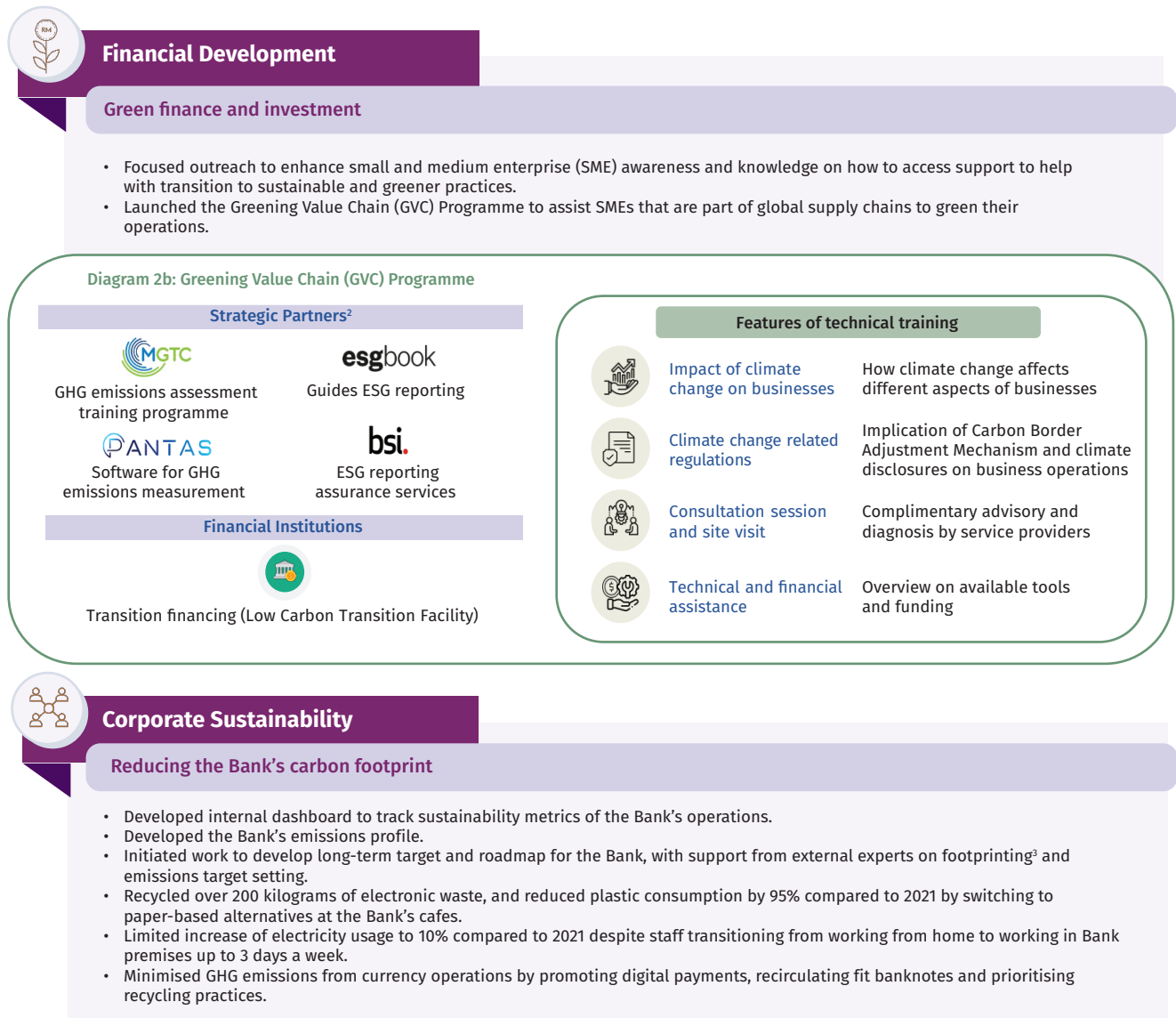
¹ E.g. agritech, flood parametric solutions.

Diagram 2: Progress and Outcomes of Climate Initiatives in 2022



Source: Bank Negara Malaysia

Diagram 2: Progress and Outcomes of Climate Initiatives in 2022



² For first pilot.

³ Footprinting is the process to measure the total amount of GHG emissions associated with all the activities of an entity.

Source: Bank Negara Malaysia

Leveraging Synergies Through the Joint Committee on Climate Change (JC3)

The Bank and the Securities Commission Malaysia (SC) continued to work closely with the financial industry via the JC3 to hasten and align the sector's response to climate change.

Key outputs of the JC3 include the publication of additional guidance (in the form of FAQs) as reference in implementing the CCPT, and an Application Guide to support financial institutions in preparing to adopt the Task Force on Climate-related Financial Disclosures (TCFD) recommendations (Diagram 3). The JC3 also finalised a Climate Data Catalogue that serves as a source of reference on climate and environmental data for the financial sector. The Catalogue is also a call to action for data providers to collectively improve availability and accessibility of climate data (Diagram 4). To support transition efforts, the JC3 coordinates initiatives between the Bank, industry and relevant government ministries and agencies to develop and implement pilot projects to scale up green finance. These projects relate to themes such as adaptation, sustainable cities and transition finance. The JC3 continued to lead capacity building efforts for the industry on key technical areas covering topics like scenario analysis and climate-related disclosures. The JC3 also worked in partnership with the Value-Based Intermediation Community of Practitioners (VBI CoP). Following consultations with the JC3, the VBI CoP finalised the Value-based Intermediation Financing and Investment Impact Assessment Framework (VBIAF) sectoral guides on oil and gas, manufacturing, and construction and infrastructure. These are in addition to the sectoral guides on palm oil, renewable energy and energy efficiency issued in 2021. The sectoral guides provide sector or transaction level guidance in implementing the CCPT.

Playing Our Part in the 'Whole-of-Nation' Response to Climate

During the year, we forged closer ties with many government ministries and agencies. This includes forming an interagency working group between

the JC3 and relevant ministries and agencies⁴. This platform enables exchange of relevant information and ideas, and cooperation on the implementation of pilot projects. This has helped the financial sector to better align its efforts in support of national climate priorities.

The Bank and the JC3 were part of Malaysia's delegation to the 27th United Nations Climate Change Conference (COP27) in November 2022 in Sharm el-Sheikh, Egypt. We took part in several panel discussions hosted at the Malaysia pavilion and the United Nations Development Programme pavilion. The panels discussed topics such as the role of finance in managing climate risk, taxonomies for sustainable finance, and financing opportunities for nature. We also took part in the NGFS Fireside Chat on capacity building and training. The Governor also provided remarks during the Forests and Climate Leaders Partnership Summit at the invitation of the UK government.

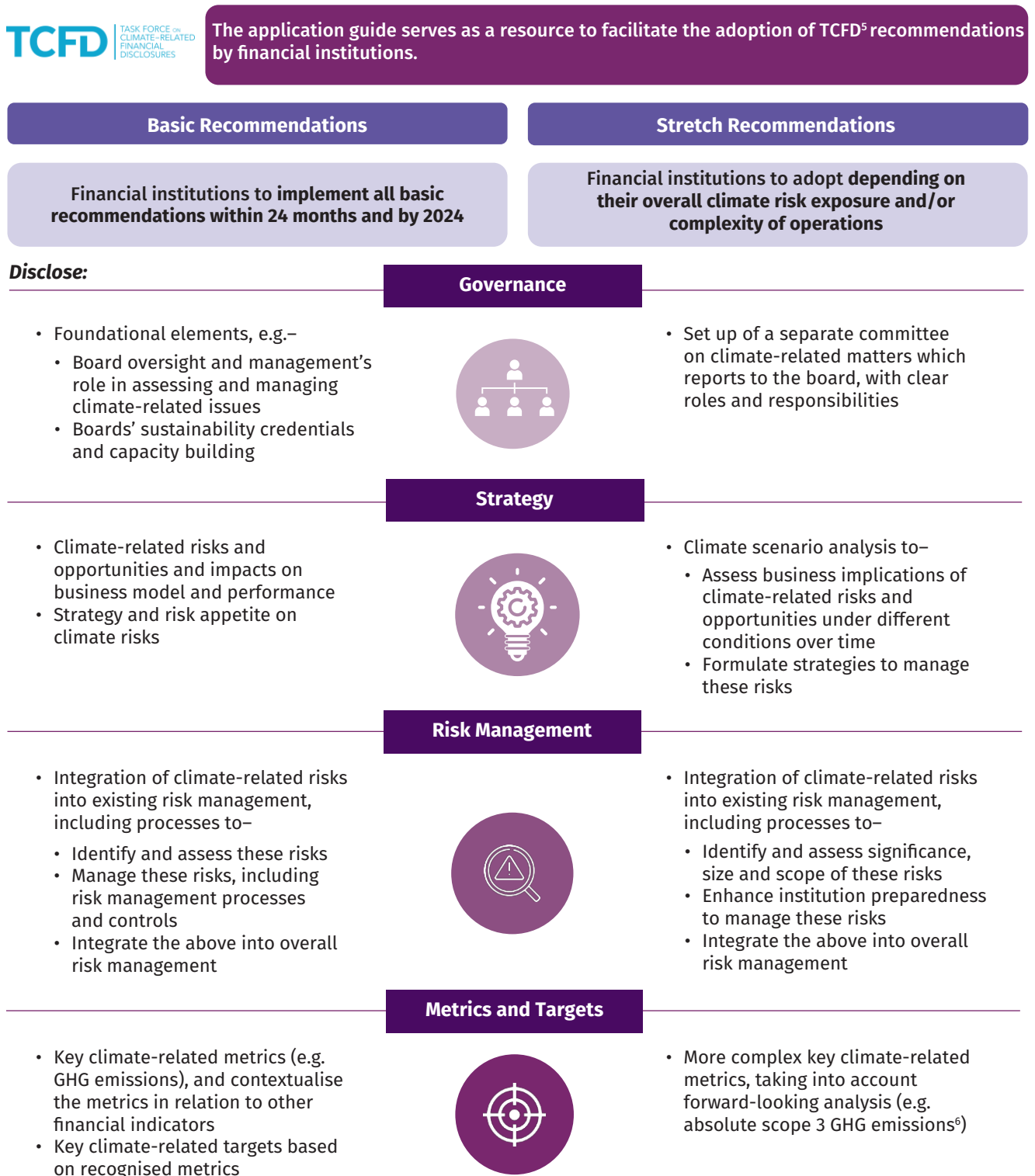
Contributing to Regional and International Thought Leadership

On the global front, we strive to contribute to the global discourse on actions needed to address the challenges faced by Malaysia and other emerging and developing economies in tackling climate risk. Massive funding, knowledge and technological advancements are still needed to address the disproportionate impact we face from climate change. Through our participation in international bodies such as the NGFS and other fora, we continue to provide an important perspective on transition challenges for smaller and developing countries, including middle income economies. We aim to help advance global collective action to improve climate equity and avoid a disorderly transition.

The Bank is part of the ASEAN Taxonomy Board, established in March 2021 to develop, maintain and promote the ASEAN Taxonomy for Sustainable Finance (ASEAN Taxonomy). The ASEAN Taxonomy sets out a common system to classify sustainable economic activities. It will guide businesses and investors in pursuing green and transition activities. It will also

⁴ Ministry of Finance, Ministry of Natural Resources, Environment and Climate Change (formerly Ministry of Environment and Water and Ministry of Energy and Natural Resources), Ministry of Economy (Economic Planning Unit) and Ministry of International Trade and Industry.

Diagram 3: Application Guide for the Adoption of TCFD

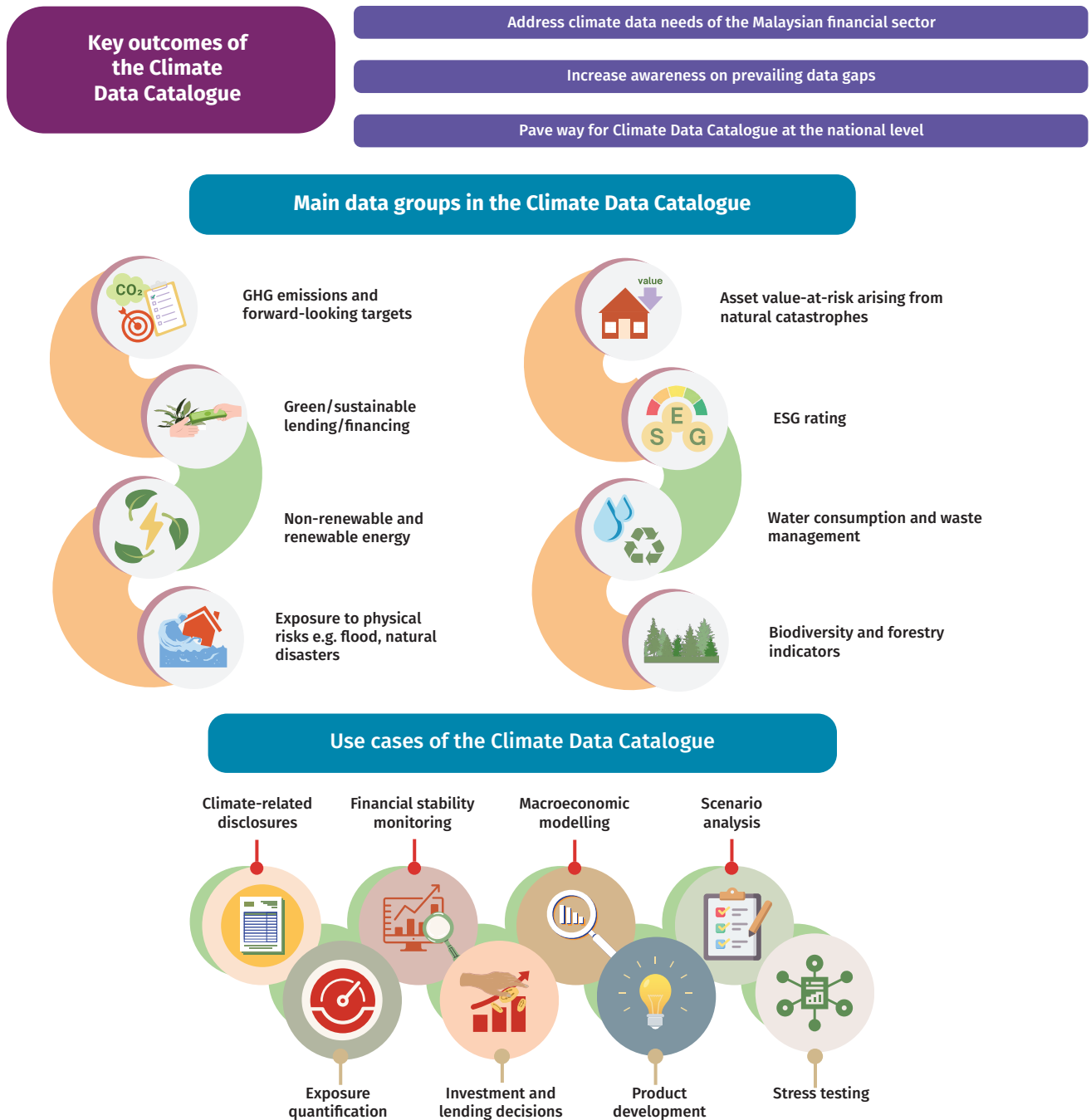


⁵ The TCFD was established to help identify information needed to support informed investment, lending and insurance underwriting decisions and improve understanding and analysis of climate-related risks.

⁶ Scope 3 emissions are indirect emissions that arise in the value chain of the company’s business activities, including financed emissions.

Source: Joint Committee on Climate Change

Diagram 4: Climate Data Catalogue



Source: Bank Negara Malaysia



Tan Sri Nor Shamsiah binti Mohd Yunus
Governor, Central Bank of Malaysia

Governor Nor Shamsiah Yunus offering remarks at the Forest and Climate Leaders Partnership Summit at COP27



Madelena Mohamed (Director of Sustainability Unit; centre) as panellist at the Advancing our Climate Journey: The Role of Finance panel at COP27

support the flow of inclusive transition finance to the region. To cater to the diversity of ASEAN Member States, the ASEAN Taxonomy adopts a multi-tiered approach comprising two main components – the Foundation Framework and the Plus Standard. The Bank led the development of the Foundation Framework. The Bank is also active in developing thresholds for the identified focus sectors under the Plus Standard.

Further, we supported The South East Asian Central Banks (SEACEN) Research and Training Centre in developing and rolling out the ASEAN Core Curriculum on Climate Risk Resilience/ Sustainable Finance. The curriculum consists of a series of training blocks on climate risks

and the challenges they pose to financial and macroeconomic stability.

The Bank also benefits from being part of NGFS workstreams and taskforces, most notably as co-chair of the Task Force on Capacity Building and Training, alongside the Bank for International Settlements (BIS). The Bank also co-chairs the Expert Network on Data with the Deutsche Bundesbank. In addition, the Bank remains actively engaged in climate-related work undertaken by the Basel Committee on Banking Supervision, the International Association of Insurance Supervisors and Executives' Meeting of East Asia Pacific Central Banks. These avenues allow our staff to contribute to global developments in managing climate risks and financing transition.



Governor Nor Shamsiah Yunus as a panellist at the Bank of Thailand 80th Anniversary Conference with BIS



Deputy Governor Jessica Chew delivering opening remarks at the Cagamas Developing and Financing Green Housing in Asia Conference

Going Forward

‘Going green’ is important for the country for two key reasons. The first is to manage and mitigate risks associated with the inevitable impact of climate change – both physical and transition risks. The aim is to ensure that our economy, and by extension businesses and individuals, are not adversely affected by climate change. The second is to enable Malaysia and its citizens to benefit from the opportunities offered by the green transition. This means greater

job opportunities, higher income and overall shared prosperity.

Achieving net zero for Malaysia will require upwards of RM350 billion in investments⁷. Both the government and the private sector, alongside the international community, have a critical role in achieving these goals. Transitioning to a climate-resilient economy entails high costs and risks. The government needs to help absorb some of the risks or reduce the overall cost especially for the vulnerable segments such as

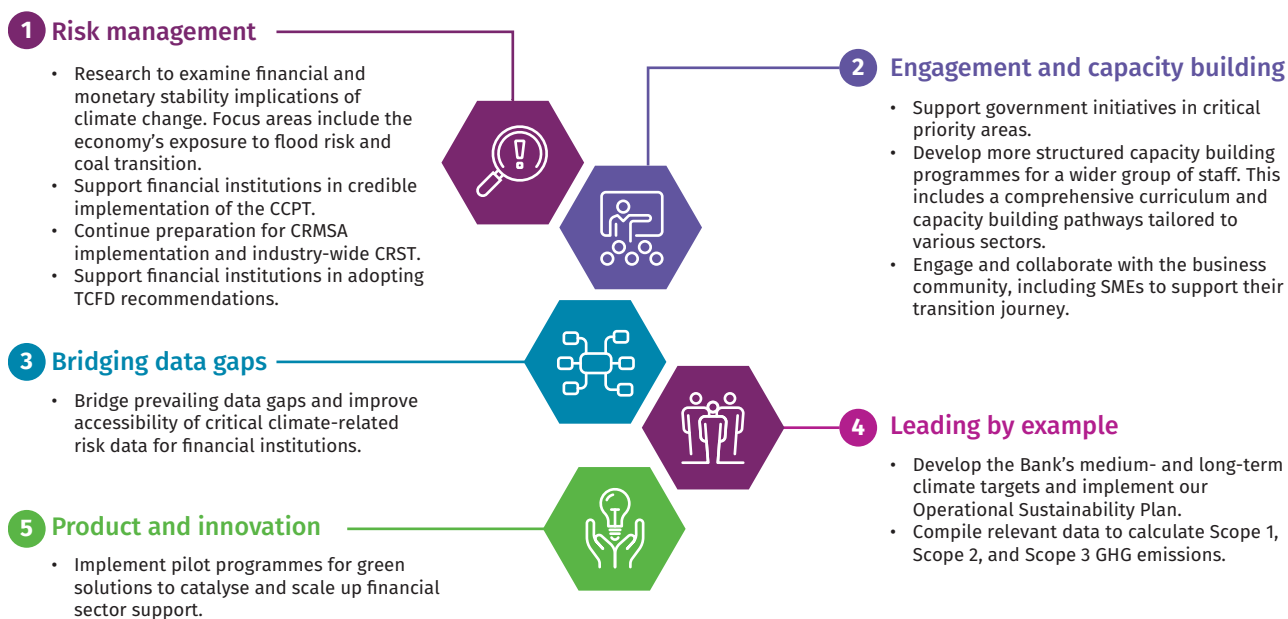
⁷ Sivaprasad, D., Chin, V., Tak, H., Ming, T.K., Ching, F.O., Kwong, J., Chan, H., Iyer, L.L.R. (2021) Securing our future: Net zero pathways for Malaysia. WWF, Boston Consulting Group, Malaysia.

SMEs. This could take the form of grants, guarantees and tax benefits. Blended finance mechanisms where both public and private sector monies are used to fund high risk transition and adaptation activities are also important. For the financial sector, they can channel finance to activities that are climate friendly or those that support green transitions. Innovative products need to be developed to distribute risk, encourage investments and better serve the needs of consumers. For Malaysia, it is also important that these measures do not lead to financial exclusion and a further widening of income gaps. This ensures that those most vulnerable to climate change and often contributing least to it, are not disproportionately affected.

The Bank will continue to focus efforts on strengthening climate resilience in the financial

sector and enhancing its capacity to support transition and adaptation activities. This builds on the progress achieved in recent years (Diagram 5). We will continue to refine our regulatory and supervisory approach as appropriate to adequately reflect risks and with domestic considerations in mind. Ongoing work with the government and industry to improve the ecosystem around green and sustainable finance will also be ramped up. This includes bridging data gaps and developing products and solutions. We will also continue to maintain close engagements with key stakeholders to foster sustained collaboration. Sharing of resources and undertaking joint capacity building are among such efforts. Finally, we will continue to strengthen internal competence and awareness to green our own operations.

Diagram 5: The Bank's Key Focus Areas for 2023



Source: Bank Negara Malaysia

Measuring the Journey towards a Low Carbon Economy

Malaysia targets to become a net zero greenhouse gas (GHG) emissions nation as early as 2050. Following this, the government is working to develop the Long-Term Low Emissions Development Strategy (LT-LEDS). The LT-LEDS aims to articulate actionable programs and policies which are needed today to deliver measurable GHG emission reductions aligned with the aims of the United Nations Framework Convention on Climate Change (UNFCCC). This will also support Malaysia's orderly and just¹ transition to a low carbon, climate-resilient economy as early as 2050. The LT-LEDS also helps to identify areas of opportunities for the different sectors. The LT-LEDS is therefore a crucial policy tool to enable businesses and financial institutions to align their own strategies to reduce their GHG emissions.

While the LT-LEDS is being finalised, the government has also laid out plans to put in place key enablers and infrastructure to facilitate the transition towards a low carbon economy. These include plans to introduce a legislative framework, and a carbon pricing framework. The launch of the Bursa Carbon Exchange (BCX), a voluntary carbon market, on 9 December 2022 is a further step forward. The BCX allows businesses to meet climate targets through trading of carbon credits from activities or projects that reduce or avoid GHG emissions. This article focuses on carbon accounting which underpins carbon pricing and trading systems and enables progress on climate goals to be reliably measured. It reviews key elements and approaches to carbon accounting, and its importance in the context of Malaysia's net zero ambitions.

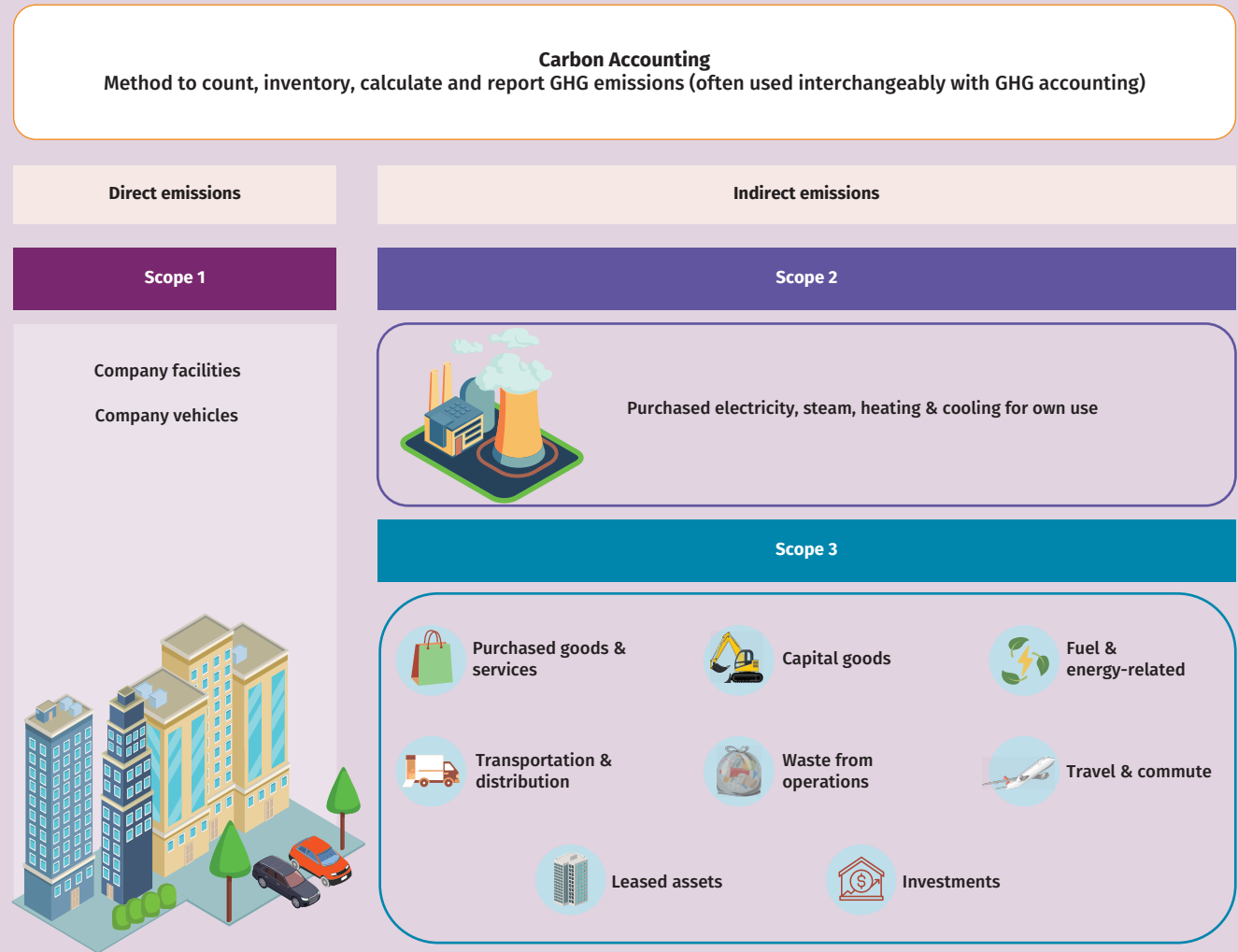
Carbon accounting as a critical enabler for transition

A clear, consistent and credible carbon accounting framework - also known as GHG accounting is a key enabler for the transition towards a low carbon economy. Carbon accounting provides a framework for measuring climate impacts of GHG emissions. This will therefore enable the setting of targets to limit and reduce emissions and to identify new growth areas. Conceptually, one can think of carbon accounting like financial accounting. Both are a form of measurement framework that promotes accountability. Both also allows one to compare performance across entities, industries and time in a consistent and reliable manner. Measuring the amount of carbon dioxide (and its equivalent) emitted by businesses from direct (scope 1) and indirect (scope 2 and scope 3) activities allows for credible monitoring, reporting and verification of GHG emissions (Diagram 1). This then enables carbon emissions to be priced accordingly based on emission targets.

Mandating carbon accounting can result in greater impact on GHG emissions reduction. To achieve this, several important preconditions must be present. The relevant regulatory and reporting systems and infrastructure need to be in place to support credible GHG reporting by companies. Having a legislation in place will facilitate effective enforcement. Further, a focus on building the knowledge and capabilities within businesses is also critical (Diagram 2). Having the relevant data to facilitate monitoring and verification will support future enhancements to the framework to ensure its continued relevance and effectiveness.

¹ A just transition aims for all segments of the business community and society to be able to benefit from the country's transition to a low carbon economy and that no-one is left behind. This involves providing the necessary support including tools, know-how and reskilling opportunities, to enable the more vulnerable communities such as the SMEs and lower income households to adapt and make the adjustments needed and minimise short-term impacts.

Diagram 1: Greenhouse Gas Protocol – Carbon accounting categories



Carbon accounting frameworks

There are several carbon accounting frameworks in use globally. The choice of framework is purpose-dependent. At the national level, countries follow the guidelines formulated by the Intergovernmental Panel on Climate Change (IPCC).² Based on the IPCC guidelines, countries need to prepare and submit GHG inventories in line with the core principles as shown in Diagram 3. Countries that are signatories to the UNFCCC, including Malaysia, follow the IPCC guidelines when submitting the biennial reports on GHG inventories to the UNFCCC.

Diagram 3: Principles of a Good Carbon Accounting Framework



Source: UNFCCC

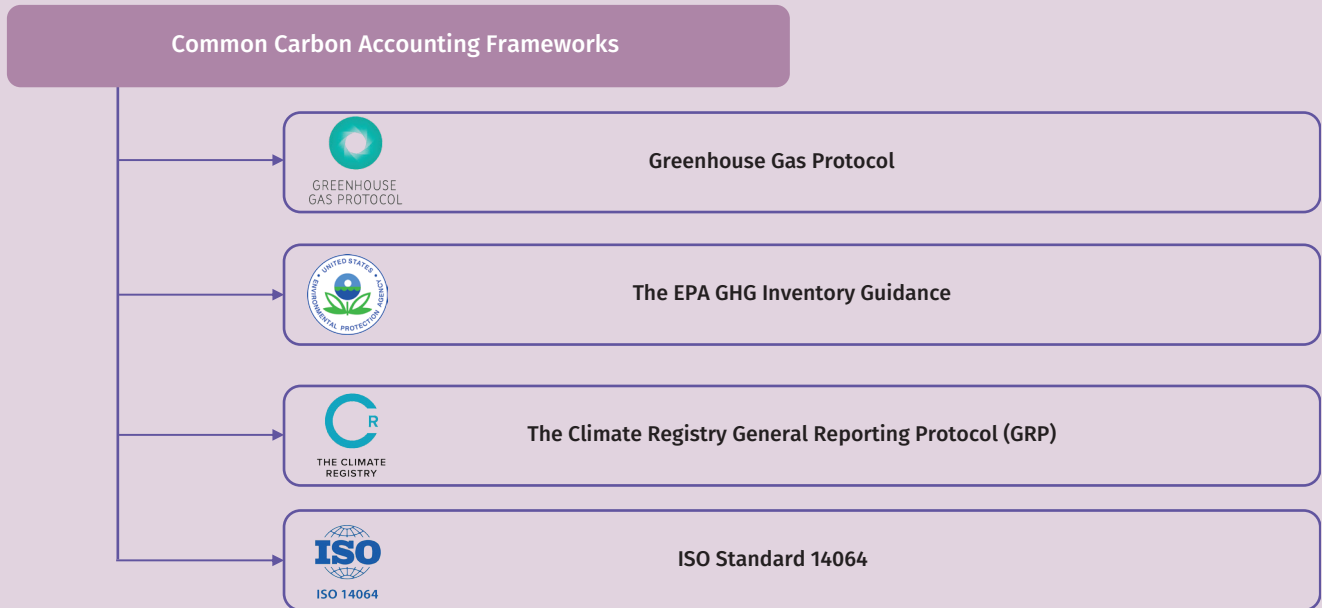
Malaysia's 2020 biennial update report to the UNFCCC highlighted that the major sources of GHG emissions were from the energy sector (79.4% of total emissions). This provides important insights for policy formulation. It helps direct the focus of policymakers to develop transition strategy for the energy sector.

The IPCC Guidelines is intended for use at the national level as it serves to facilitate country reporting. Its use at entity level is less appropriate as the IPCC Guidelines does not provide granular guidance on activity-based emissions. In addition, the IPCC methodology only includes direct emissions which is insufficient to inform operational and strategic decisions at entity level. As such, entities often adopt a different framework to measure their own emissions (Diagram 4). Each framework adopts a different methodology. For example, the Greenhouse Gas Protocol provides best practices for calculating GHG inventories. Meanwhile, ISO14064 focuses mainly on processes and is typically used for verification. Understanding the methodology underlying the frameworks and their limitations is important to ensure that the information captured and produced is fit-for-purpose, properly interpreted and analysed, and any responses are made on an informed basis.

Common carbon accounting frameworks typically adopt several approaches to measuring carbon emissions. The approaches are spend-based, activity-based, and/or a hybrid approach (Diagram 5).

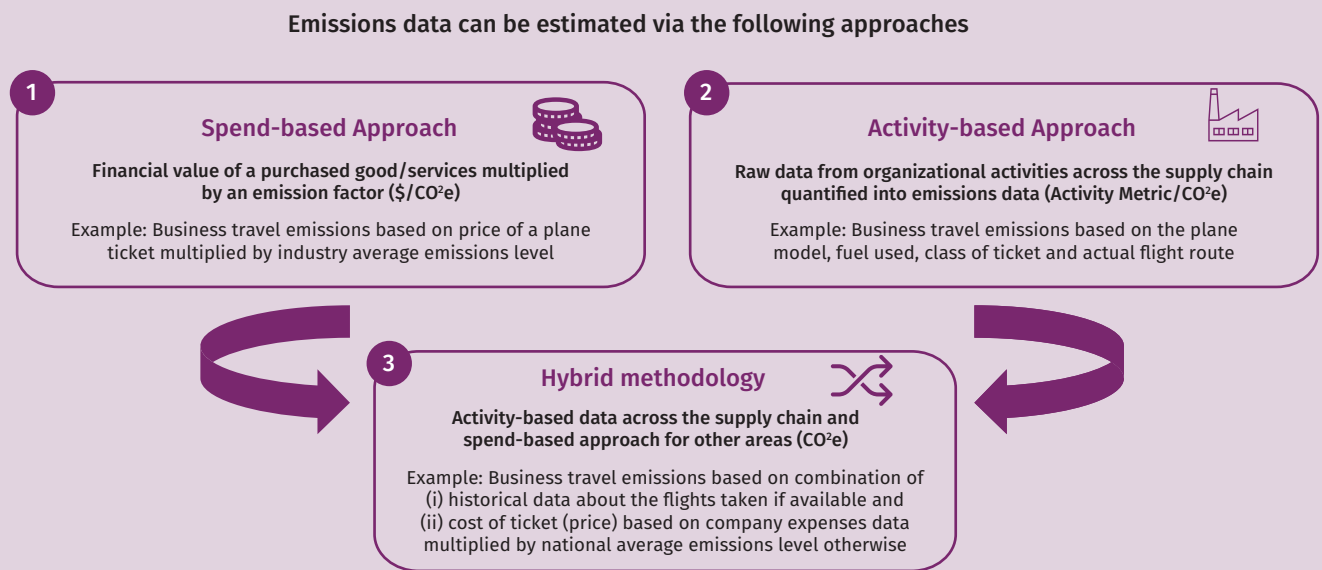
² IPCC is a scientific body commissioned by the UNFCCC

Diagram 4: Commonly used carbon accounting frameworks



Source: Corporate Finance Institute

Diagram 5: Approaches to measure carbon emissions



Source: Greenhouse Gas Protocol

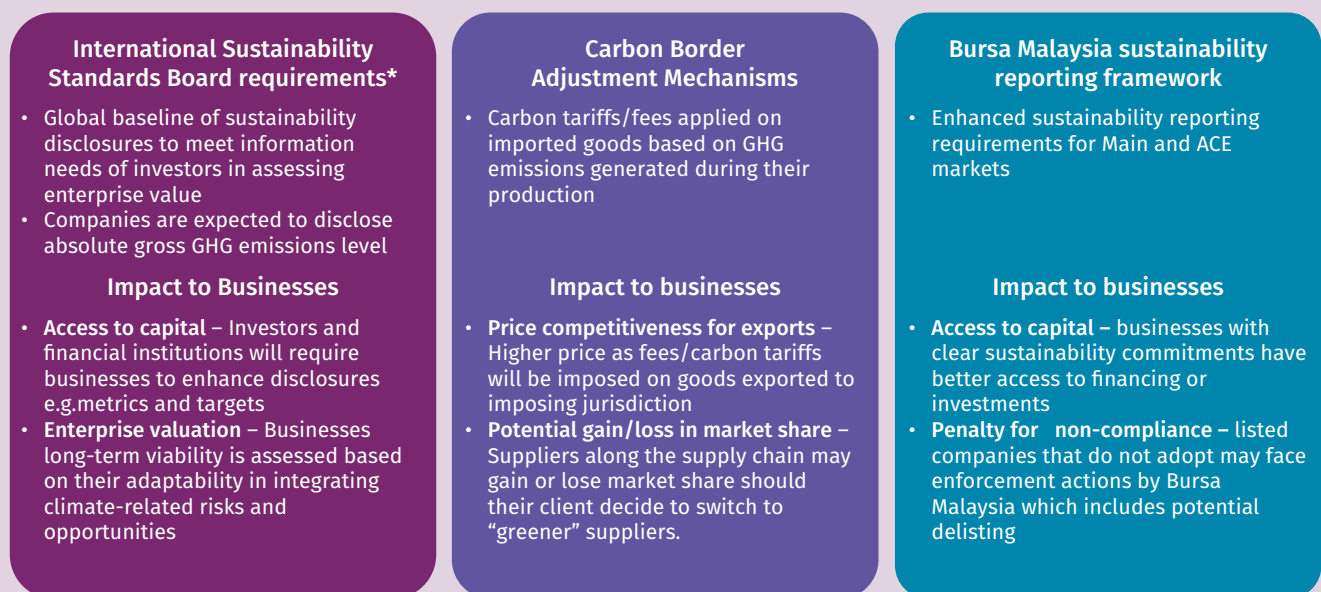
The Greenhouse Gas Protocol recommends the hybrid methodology, which is the most used carbon measurement methodology given its pragmatic approach.³

³ While it is usually more accurate to use information about activities of a business to measure how much carbon it is producing as compared to the spend-based data, such information is not as readily available and can be time consuming to gather.

Importance of carbon accounting for businesses

There is growing demand from shareholders and investors for climate-related disclosures from their investees. This includes disclosures on GHG emissions to facilitate their investment decisions and meet regulatory requirements. Financial institutions that have pledged net zero targets are similarly requiring GHG emissions disclosures as they start to assess and disclose GHG emissions from their loans and investments. Similarly, large asset owners and asset managers at the top of the investment chain are making significant strides to provide better climate-related financial disclosures that support climate targets. This is shaping financing and investment decisions. As a result, the ability of businesses to accurately measure and report emissions is becoming more important for businesses to tap the needed capital at a potentially lower cost. Governments and regulators around the world are also increasingly looking to accelerate progress on climate goals and improve disclosures on carbon emissions (Diagram 6).

Diagram 6: Current and Emerging Regulatory Requirements on Climate and Sustainability Disclosures



*Draft standards

Source: Compilation from various regulatory announcements

Carbon accounting is key to Malaysia’s journey towards achieving its net zero ambitions

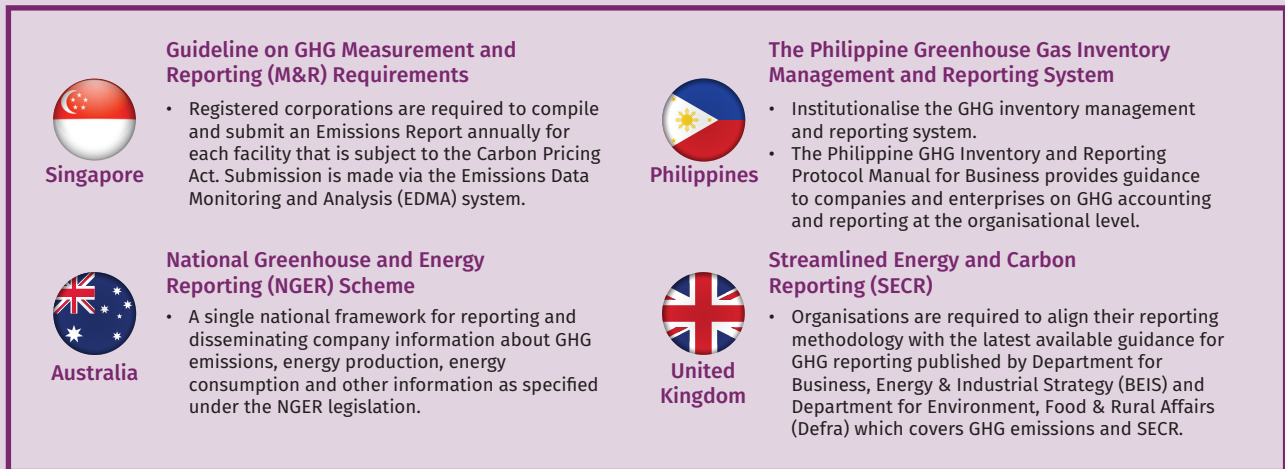
At present, some form of sustainability disclosure is already required for listed entities in Malaysia. Plans are underway to enhance such disclosures to include GHG emissions.⁴ For financial institutions, mandatory disclosure based on the TCFD⁵ recommendations will commence from 2024. Broader mandates that also include other entities to measure and disclose their carbon emissions would complement these efforts in ensuring that commitments are turned into action.

A national carbon accounting framework provides a consistent approach for assessing GHG emissions and enables targets to be set at the entity, sector and national levels to limit these emissions. More jurisdictions, including in this region, have recently introduced GHG reporting frameworks (Diagram 7). Carbon emissions can then be priced accordingly based on these targets to influence business decisions and behaviours.

⁴ Bursa Malaysia requires listed entities to disclose Sustainability Statement which covers among others, aspects on governance and strategies since 2016.

⁵ The Task Force on Climate-Related Financial Disclosures (TCFD) under the Financial Stability Board has developed a framework to help entities provide more effective financial disclosures relating to climate. The framework comprises four components namely governance, strategy, risk management, and metrics and targets.

Diagram 7: GHG Reporting Frameworks and Systems In Selected Jurisdictions



Source: Respective government websites

In Malaysia currently, measurement is based on data obtained through various sources such as the relevant government agencies and publications. For example, data to measure emissions for the energy sector is sourced from the National Energy Balance (NEB), other government agencies and the private sector. In areas where national level data is not available, international data is used. Extrapolation as per the IPCC Guidelines would be carried out in instances where data for certain periods is not available. There are now plans to develop country-specific emission factors⁶ for key sectors. This would form a good basis for the government to develop the national level carbon accounting framework going forward. In the long run, the framework will provide a baseline for the government to develop and scale market mechanisms such as compliance carbon markets. This in turn will be critical to further accelerate climate action in Malaysia towards its net zero goals and mitigate adverse impacts from a disorderly transition.

⁶ Country-specific emission factors are developed by taking into account country-specific data, such as carbon content of the fuels used, carbon oxidation factors and fuel energy content.

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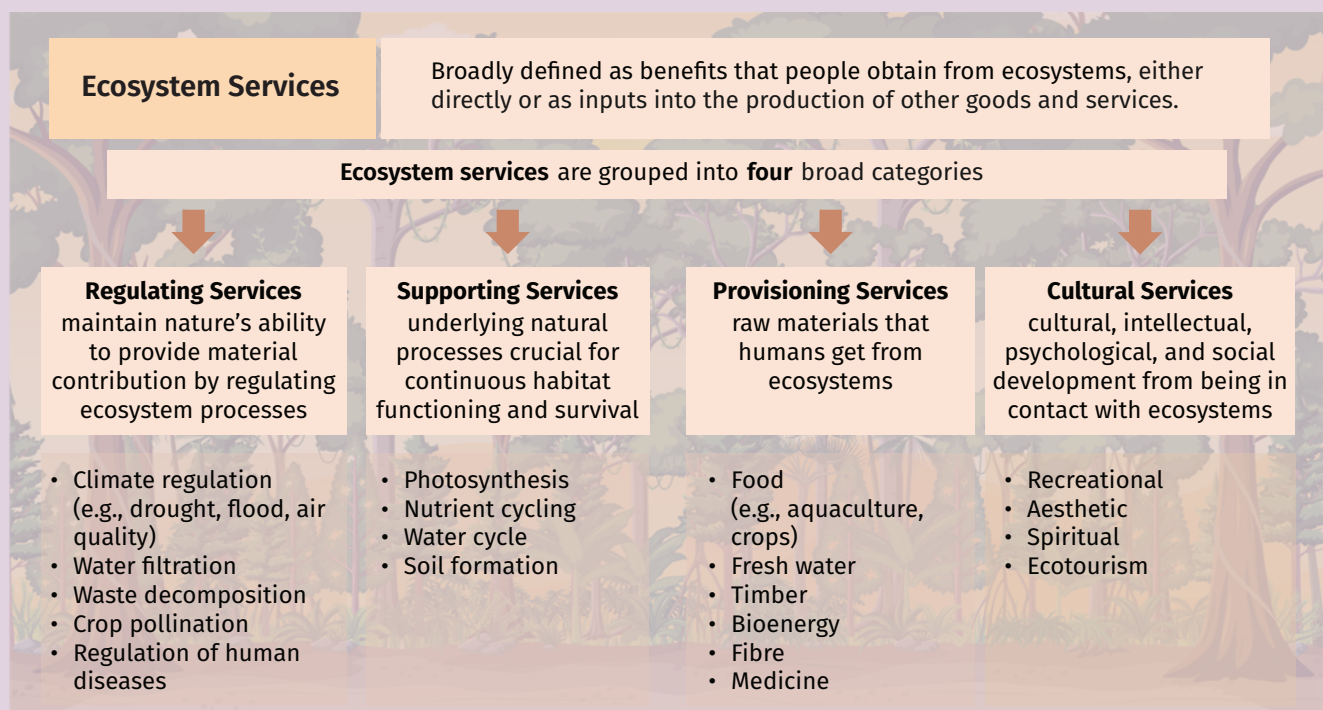
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Biodiversity Loss: Implications on the Economy and Financial Stability

We rely on nature and its ecosystem to survive. Biodiversity in an ecosystem consists of various species of plants, microbes, fungi, and animals which exist and interact with each other. These species also interact with other non-living elements such as water, soil, and the sun. Humans have benefitted from these interactions within the ecosystem. The benefits are many such as supply of food, raw materials, water, and clean air. Well-functioning ecosystems also help to prevent rise in temperature. As such, it is important to maintain a balance in the ecosystem. This will ensure humans and economies can continue to benefit from nature and ecosystem services in a sustained manner (Diagram 1). The importance of biodiversity to lives and livelihood, however, is often overlooked. In the context of risks, there has been much discussion on the importance of assessing climate-related risks to our economy and financial sector, but risks arising from biodiversity loss have received little attention. This article explains the interactions between biodiversity loss and climate change, assesses how biodiversity loss affects our economy and banks, and the Bank’s focus going forward.

Diagram 1: Interconnection between people, biodiversity, ecosystem health, and provision of ecosystem services



Source: Illustration from WWF’s Living Planet Report (2012)

Understanding Malaysia’s biodiversity

Malaysia is one of the world’s megadiverse countries.¹ We are ranked 12th on the National Biodiversity Index² (Diagram 2). Natural resources (such as oil and timber) and abundant ecosystem services (such as healthy soils and clean water) have directly contributed to the country’s economic development. Various economic activities use ecosystem services either as inputs to production and operations, or as subjects of research and development (WEF, 2020). From an ecological perspective, biodiversity is integral in sustaining overall planetary

¹ A megadiverse country has at least 5,000 endemic plants and a marine ecosystem within its borders. In 1998, Conservation International identified 17 megadiverse countries (Brazil, Indonesia, Colombia, China, Mexico, Australia, Peru, India, Ecuador, United States of America, Venezuela, Papua New Guinea, Myanmar, Vietnam, Malaysia, Democratic Republic of Congo and Tanzania).

² National Biodiversity Index (NBI) is based on estimates of a country’s richness and endemism in four terrestrial vertebrate classes (i.e., amphibians, reptiles, mammals, and birds) and vascular plants. The NBI includes some adjustment allowing for country size and countries with land area less than 5,000 square kilometres to be excluded. There are 191 countries assessed under the NBI.

health. Forests, peatlands, wetlands, soil, and oceans play a key role in absorbing and storing carbon. The natural ecosystems help to protect humans from the impact of climate change that leads to natural disasters such as floods and storms.

Diagram 2: Biodiversity in Malaysia



Source: 6th National Report of Malaysia to the Convention on Biological Diversity (December 2019)

Interactions between biodiversity and climate change

Nature-related risks refer to risks from the decline or loss of ecosystem services, biodiversity, and natural assets (such as water and forests). Excessive extraction and usage can deplete resources over time and cause harm to the society and economy. Excessive economic development activities could also degrade ecosystem services. These include deforestation, pollution, overfishing, land-use change³, and other human activities that drive habitat loss and fragmentation. Climate change is also accelerating biodiversity loss and reducing the resilience of ecosystems. This heightens nature-related risks which in turn can put the viability of businesses and lives at risk. Businesses that are highly dependent on ecosystem services for ongoing business operations are most exposed to such risks. Holistic and carefully designed measures that promote responsible usage, or replenish the resources, are therefore essential to preserve lives and livelihoods.

Nature- and climate-related risks are closely connected. As with climate change, nature-related risks can manifest in physical, transition, and liability risks (Diagram 3). These risks can also lead to financial and economic losses due to a diminished capacity to adapt and build resilience against adverse events. A World Bank study⁴ assesses how much damage would be caused if certain parts of the ecosystem, like marine fishing, wild pollination, and timber supplies in the ecosystem were reduced by 90%. The study found that in East Asia and the Pacific region, this could lead to a loss of 3.4% of the GDP by 2030 compared to the baseline scenario. In Malaysia, the loss is expected to be even bigger at 6% of GDP by 2030 due to adverse impacts from the collapse of Malaysia's forestry and fisheries ecosystem services (Johnson et. al, 2021).

³ Land-use change is the transformation of natural landscape driven by human activities, either for economic and/or cultural purposes (e.g., agricultural, residential, industrial, mining, and recreation).

⁴ The World Bank study "The Economic Case for Nature: A Global Earth-Economy Model to Assess Development Policy Pathways" (Johnson et. al, 2021)

Diagram 3: Nature loss and climate change

Nature loss reduces resilience to climate change

- Loss of forests as water catchment areas exacerbates the effect of droughts.
- Bare, deforested mountaintops carry worse landslides during extreme rainfall.
- The loss of forests also means the loss of carbon sinks.

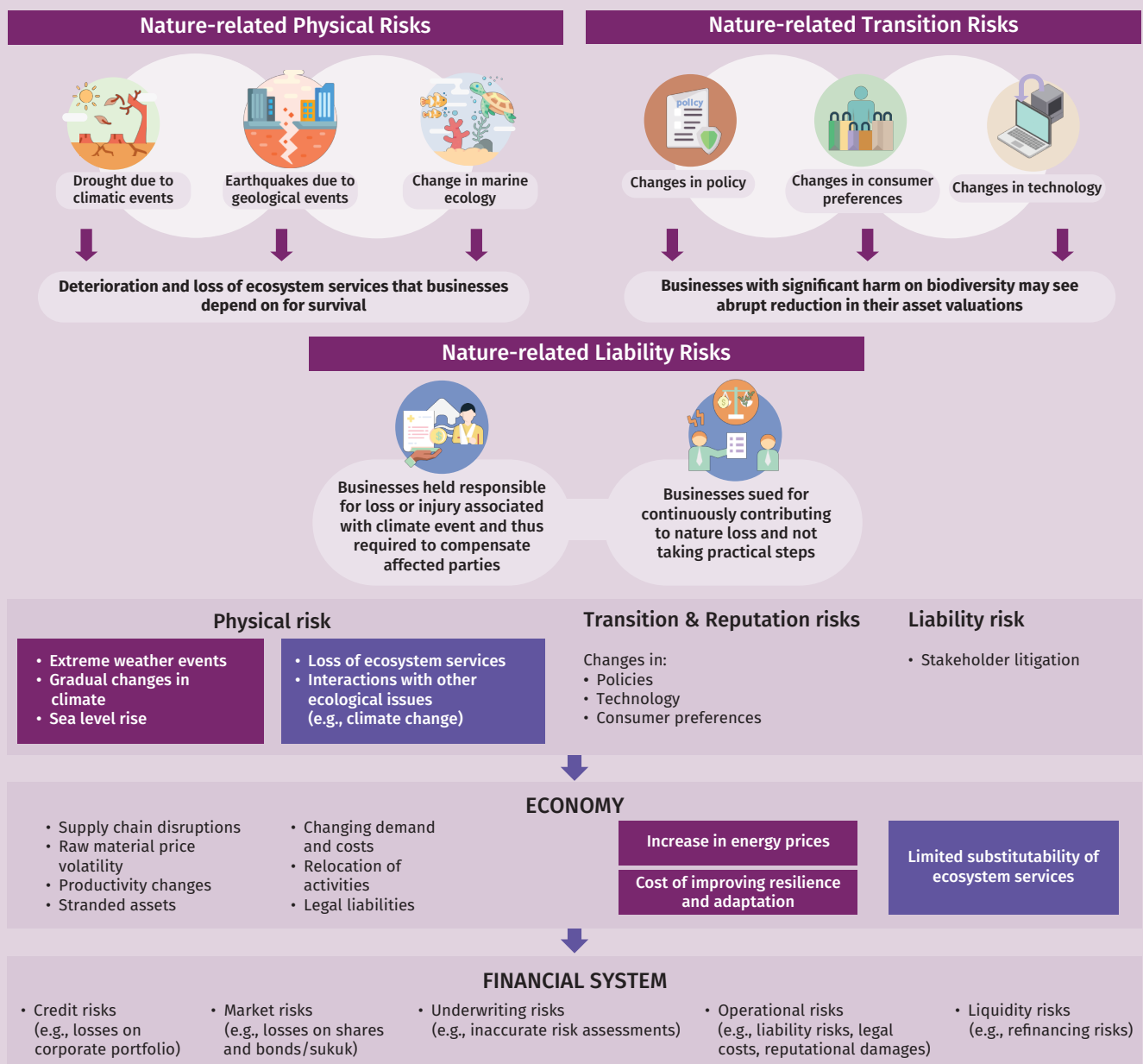


Climate change is a driver of nature loss

- Increased GHG emissions changes the water cycle and alters soil temperature and humidity.
- Extreme weather events affect wildlife and destroy habitats.
- Oceans soaking up too much carbon lead to ocean acidification, which harm marine life.

Source: Intergovernmental Panel on Climate Change (IPCC), Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES)

Diagram 4: Financial and economic implications of nature-related risks



Legend: Climate-related risk Nature-related risk

Source: Bank Negara Malaysia

The Bank also worked with the World Bank to study how nature, our economy, and the financial sector are connected. The study looks at the exposures of our banks to sectors and regions that are highly vulnerable to biodiversity loss and other nature-related risks. Key findings are published in a report titled “An Exploration of Nature-Related Financial Risks in Malaysia” (the Report) (Diagram 5).

Diagram 5: Key findings from the report “An Exploration of Nature-Related Financial Risks in Malaysia”⁵

- 54% of the commercial lending portfolio could currently be exposed to physical risk due to being highly or very highly dependent on one or several ecosystem services.
- Most prominent individual ecosystem services include surface water, ground water, flood and storm protection as well as climate regulations. Climate regulation entails natural carbon sinking mechanism which helps dampen the impact of climate change (Chart 1.1).
- 87% of the commercial lending are channelled to sectors which highly or very highly impact various natural assets and ecosystem services i.e., real estate activities (17%), wholesale trade (11%), construction of buildings (10%), civil engineering (6%), and retail trade (5%).
- Commercial lending contributed to the proliferation of the following impact drivers which in turn severely affected ecosystem services and natural assets: GHG emissions (61%), water use (56%), and terrestrial ecosystem use (43%) (Chart 1.2).

Chart 1.1: Dependency on ecosystem services (physical risk)

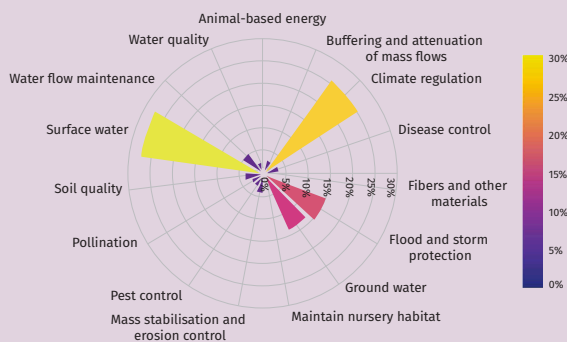


Chart 1.2: Impact of business activities on ecosystem services (transition risk)

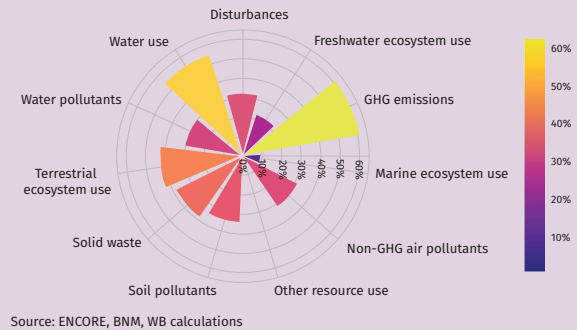
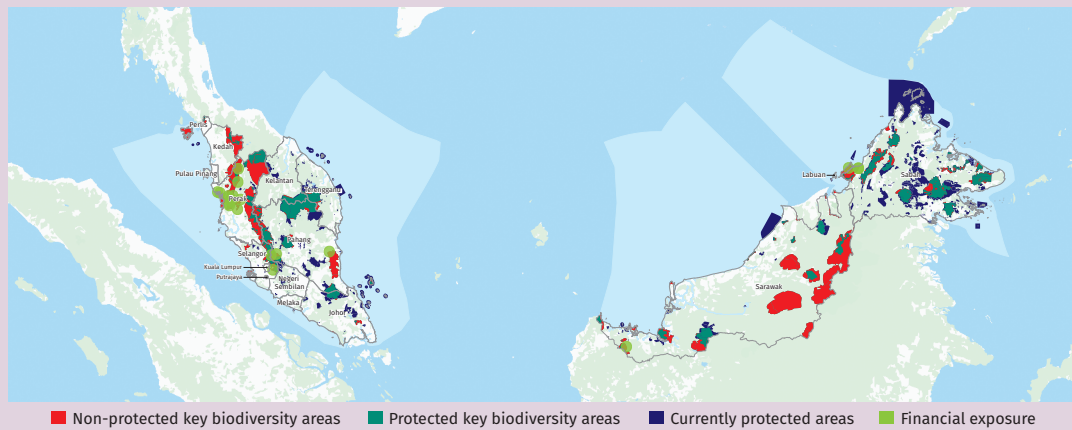


Chart 1.3: Commercial residential and non-residential purchase lending exposure by postal code area of Malaysian banks to non-protected Key Biodiversity Area (KBA)



Source: Department of Statistics Malaysia (DOSM), Integrated Biodiversity Assessment Tool (IBAT), Birdlife International Partnership, Alliance for Zero Extinction, BNM (unpublished data), Humanitarian Data Exchange 2021, WB calculations

- **Key Biodiversity Area (KBA) are sites that contribute significantly to maintaining global biodiversity and thus are important candidates for future protective regulation.** Enforcement of existing protected areas and creation of new protection areas could pose significant nature transition risk to the Malaysian banking sector and the real economy.
- RM 329 million (USD 78 million) of commercial lending are granted to firms actively operating in locations that are currently non-protected KBA. This is a conservative estimate due to limitation in the available dataset. Sectors that are typically active in non-protected KBA are agriculture and mining.
- More than 60% of commercial lending exposure are in areas that are either not protected i.e. KBA at this current juncture or in areas with limited biodiversity i.e. Kuala Lumpur and Selangor (Chart 1.3).

Source: Bank Negara Malaysia

⁵ Report on “An Exploration of Nature-Related Financial Risks in Malaysia” can be accessed here: <https://www.bnm.gov.my/documents/20124/3770663/wb-bnm-2022-report.pdf>

The report also provided recommendations for policymakers and relevant authorities to better understand and address nature-related financial risks within existing climate change policies or strategies (Table 1).

Table 1: Possible actions to address challenges of nature-related financial risks

	<i>Less Intensive</i> ←	→ <i>More Intensive</i>
Awareness & Policy Discourse		
Raising awareness on nature-related financial risks	<ul style="list-style-type: none"> Share World Bank and BNM report findings (Diagram 5) to key stakeholders (government, financial institutions) Contribute to awareness-raising programs on nature-related financial risks 	<ul style="list-style-type: none"> Advocate and/or collaborate with government to include considerations of nature-related financial risks in policies & investments Support the government in developing a cohesive national strategy to address nature-related risks
Capacity Building		
Enhancing capacity building of relevant stakeholders	<ul style="list-style-type: none"> JC3 to include nature-related financial risks in its capacity building and stakeholder engagements Collaborate with experts to deepen knowledge and develop tools for nature-related financial risks 	<ul style="list-style-type: none"> Support development of incentives and financial instruments to protect biodiversity and ecosystem services Expand existing government grants/funds related to climate change to include protection of biodiversity and ecosystem services
Enhancing macroeconomic surveillance capacity and risk identification	<ul style="list-style-type: none"> Enhance technical capacity in risk transmission i.e., interactions between climate- and nature-related risks Imbue common factors of climate- and nature-related financial risks in surveillance framework 	<ul style="list-style-type: none"> Improve data on nature-related risks at a granular level (leveraging on JC3's ongoing initiative) Embed nature-related financial risks in high-level reference scenarios for stress testing Supervisory deep-dives at banks with substantial financing in (future) protected areas
Policy Adoption		
Developing regulatory and supervisory requirements for supervised institutions	<ul style="list-style-type: none"> Enhance existing guidance on nature-related risks in taxonomies and frameworks 	<ul style="list-style-type: none"> Set expectations to understand the most relevant nature-related financial risks Embed nature-related financial risks in climate-related guidance (governance, disclosure, risk management) Communicate expectation to manage and disclose nature-related financial risks together with climate-related risks Develop monitoring system for new credits to be compliant with climate- and nature-related regulations

Source: Bank Negara Malaysia

Future Work

Financial industries around the world are just starting to pay attention to the issue of biodiversity loss and nature-related financial risks. A similar situation is also observed in Malaysia. This is mainly due to low awareness and understanding of how climate and nature are connected. The potential impact of risks associated with climate change and nature to the financial sector, economy, and society as a whole is also not well-appreciated or understood. As the financial industry begins to deal with risks from climate change, it is also necessary for the sector to start building knowledge on nature-related financial risks. These risks are closely related. So, approaches and strategies taken to manage climate-related risks can be used with some adjustments to begin to also deal with risks arising from biodiversity loss. Where relevant, nature-related financial risk considerations should be integrated into current practices, policies, and frameworks for climate risk management. Financial institutions should also consider educating their clients on nature-related risks and the impact on them. The development of nature-based solutions⁶ also creates new financing prospects for financial institutions that will bring about positive values to the environment and society.

While they are considerably more complex to deal with, the impact of nature-related risks is likely to be more significant than climate-related risks. Current strategies to respond to climate-related risks can serve as important building blocks for financial institutions to consider nature-related financial risks in their strategies and actions. To this end, the Bank plans to extend current engagements and capacity building initiatives within the Bank and financial sector to the consideration of nature-related risks. The immediate focus is to identify opportunities to build on ongoing efforts to strengthen climate resilience. For example, the JC3 sub-committee on Bridging Data Gaps (BDG)⁷ is already exploring ways to improve collection of data relevant to nature-related risks in Malaysia. This aims to facilitate more granular analysis on how the financial sector drives nature-related risks and on the flip side, the impact of biodiversity loss to the financial system, to serve as a basis for prioritising the industry's response to nature-related risks.

⁶ Nature-based solutions are actions to protect, conserve, restore, sustainably use and manage natural or modified terrestrial, freshwater, coastal, and marine ecosystems while simultaneously generating environmental, social, and economic benefits, and building resilience (United Nations Environment Programme).

⁷ The BDG had, on 16 December 2022, published a data catalogue as a source of reference on climate and environmental data for the financial sector. For more information, visit <https://www.bnm.gov.my/-/jc3-climate-data-catalog>

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