



Monetary Authority of Singapore

**INFORMATION PAPER ON
ENVIRONMENTAL RISK MANAGEMENT
(INSURERS)**

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1 OVERVIEW

The transition to a sustainable future involves real economy transformation and presents significant risks and opportunities to the financial system. To strengthen the insurance sector's resilience to and management of environmental risk, the Monetary Authority of Singapore (MAS) issued the Guidelines on Environmental Risk Management for Insurers (ENRM Guidelines) in December 2020, setting out supervisory expectations on sound risk management practices. The ENRM Guidelines take effect in June 2022. In January 2021, the MAS-convened Green Finance Industry Taskforce (GFIT) produced a complementary handbook with practical implementation guidance and good practices on environmental risk management.

MAS conducted a survey of selected insurers in 2021 ahead of the effective date of the ENRM Guidelines to assess the pace of implementation and to benchmark practices. The 16 insurers (referred to collectively as "insurers" within this paper) were selected based on a range of factors, including level of maturity of environmental risk management practices, nature of insurance business conducted and size of the insurer's operations in Singapore. MAS also met with the insurers to dive deeper into their survey responses.

This information paper highlights emerging and/or good practices by selected insurers, identifies areas where further work is needed, and serves as a reference for insurers to facilitate their efforts to strengthen their resilience to environmental risk. Insurers should assess the applicability of the practices in the paper as they work to bolster their resilience to environmental risk in a way that is commensurate to their size, nature of activities and risk profile. Particular attention should be paid to areas where further work is required, as highlighted in this paper. The practices here are not exhaustive and better approaches will continue to be developed.

Insurers were at varying stages of progress in integrating environmental risk considerations into their risk management framework and processes. Majority of the insurers expected themselves to be in full compliance with the ENRM Guidelines come June 2022, while the rest were committed to accelerating their implementation. Apart from climate-related risks, insurers have yet to make meaningful progress to address other environmental risk factors, such as biodiversity loss.

Insurers cited a number of challenges in addressing environmental risks, but work is underway domestically and internationally to address them.

- Need for readily available data that is reliable and comparable: Ongoing work by the International Sustainability Standards Board (ISSB) is expected to result in international convergence to a set of baseline climate disclosure standards. Where feasible, technological solutions like Project Greenprint will be employed to promote data consistency, comparability and reliability.
- Need for robust methodologies to quantify financial impact: A number of international bodies have issued guidance on best practices on forward-looking risk assessment methodologies to factor in the unprecedented, complex and interconnected nature of environmental risks, such as the Network for Greening the Financial System (NGFS) work on climate scenario analysis. In Singapore, GFIT has launched a series of capacity building workshops to deepen knowledge and strengthen capabilities in environmental risk management. MAS will also incorporate a range of thematic climate scenarios as part of the 2022 Industry-Wide Stress Test exercise, to encourage the collaborative development of capabilities in climate risk scenario analysis and assessment.
- Increased demand for staff skilled in sustainable finance and insurance: MAS and industry stakeholders are collaborating to facilitate a strong talent pipeline, through supporting

centres of excellence and training providers to strengthen sustainable finance and insurance skills and capabilities.

Insurers' actions to address environmental and climate-related risk, including their transition plans, are also under increasing scrutiny by stakeholders. While stakeholders have rightly called for a swift transition, indiscriminate withdrawal of insurance coverage or investment from sectors deemed to be of higher climate-related risks would adversely impact companies with credible transition plans, and increase the risk of a protection gap, stranded assets and a disorderly transition. Insurers have therefore had to manage their reputational risk against this backdrop as they work towards supporting an orderly transition.

Standard setting bodies, international bodies and local regulators are progressively setting out supervisory expectations and regulations that insurers will need to consider.

MAS will continue to partner with insurers to accelerate their efforts in:

- **Translating their environmental risk strategy and risk appetite into concrete milestones and tangible targets for action.** This includes actions to be taken within the insurer to support progress towards more sustainable operations and to steward their customers' transition in accordance with science-based transition pathways (e.g. sector policies).
- **Deepening the understanding of the potential impact and consequences of environmental risk, both within their own institution and from their financed emissions.** Within insurers, this would include building forward-looking risk assessment capability, further work on risks manifesting beyond underwriting and investment risks, as well as developing an understanding of environmental risks beyond climate change. In relation to insured and financed emissions, this would include building awareness among customers and investee companies and financing the change necessary to avert materialisation of environmental risk-related protection gaps or stranded assets.
- **Designing and executing necessary changes to internal and external processes to effect and sustain meaningful outcomes,** including embedding environmental risk considerations into business-as-usual process (e.g. data, risk management infrastructure and processes, and underwriting and investment decisions) to mitigate potential risks arising from greenwashing and transition-washing.
- **Being accountable to stakeholders in relation to environmental risk by disclosing and explaining potential impact on business and risk implications.** This would include clearly communicating the implications on the insurer and its customers arising from underwriting and investment decisions (such as through sector policies) and the insurer's progress in meeting decarbonisation targets (including financed emissions).

Insurers have to set tangible targets to address environmental risk with urgency and ambition. This will allow them to track rapidly-evolving industry best practices and act before the global window of opportunity to stave off the worst effects of climate change closes. Climate-related risks are expected to materialise as temperatures rise¹ – it is not a matter of if, but a matter of when and how. Insurers should continue to push ahead even with imperfect information as hesitation to act would be costly, both for insurers themselves and for the broader economy that they insure and finance.

¹ Intergovernmental Panel on Climate Change (IPCC)'s Sixth Assessment Report, Regional Fact Sheet for Asia, highlights that weather patterns are expected to change (e.g. increase in average and heavy precipitation, continued rise in sea level and increases in heat extremes).

2 GOVERNANCE & STRATEGY

Strong governance and a clear strategy are foundational to sound environmental risk management.

Environmental risks can impact an insurer on various fronts, hence an enterprise-wide response with the right support from the Board of Directors and senior management is critical. These risks can manifest through various physical and transition risk channels, materialise over uncertain and extended time horizons, and be far-reaching in breadth and magnitude. An insurer's strategies will need to set clear direction that is cascaded down for effective implementation to strengthen the insurer's resilience to environmental risk and facilitate the transition to a sustainable economy.

Environmental considerations should be integrated into an insurer's governance and risk management framework, risk appetite, strategies, and business plans. This would facilitate consistency of the insurer's publicly-stated environmental goals and objectives with its internal risk appetites and strategies. Customers, investors, regulators, and other stakeholders now have growing expectations of the need for an insurer's leadership to incorporate considerations on environmental risks, as part of their fiduciary and management responsibilities².

Relevant Resources

- Climate Financial Risk Forum (CFRF) Guide 2021 – Climate Risk Appetite Statements, 2021
- CFRF Guide 2021 – Climate Data and Metrics, 2021
- GFIT Handbook on Implementing Environmental Risk Management, 2021
- Singapore Exchange (SGX) Consultation Paper and Response on Climate and Diversity: The Way Forward, 2021
- Task Force on Climate-related Financial Disclosures (TCFD) Guidance on Metrics, Targets, and Transition Plans, 2021
- TCFD, Implementing the Recommendations of the Task Force on Climate related Financial Disclosures, 2021
- The Glasgow Financial Alliance for Net Zero (GFANZ), Our Progress and Plan Towards a Net-Zero Global Economy, 2021
- WWF Resilient and Sustainable Portfolios: A Framework for Responsible Investment, 2019
- WWF Insight Reports, 2020 – 2022
- WWF Resilient Portfolio Tool (RESPOND)

2.1 FOCUS AREA 1: CORPORATE GOVERNANCE

Most insurers have defined and included environmental risk within their risk inventory. Some insurers defined environmental risk on its own, while others defined it as part of environmental, social and governance (ESG) risk. The definition from several insurers largely focused on climate-related risks, while other insurers had considered a broader range of risks, such as loss of biodiversity, pollution and change in land use. A few insurers were still in the process of assessing the relevance and materiality of environmental risk to their business, before defining and incorporating environmental risk into their risk inventory.

As environmental risk has become a pertinent aspect of insurers' risk management process, most insurers have designated Board and/or senior management to be responsible for the oversight of

² For example, company directors in Singapore are obliged by SGX to consider climate change risks as part of their duties to act in the company's best interests. The ENRM Guidelines sets out expectations for Board and senior management responsibilities to be incorporated in the environmental risk management framework.

environmental risk management. Sustainability committees have also been established by some insurers to look into the management of environmental risk. Based on our observations, insurers have adopted one (or a combination) of these approaches to maintain oversight of environmental risk:

- Sustainability centre/business unit: A few insurers have set up dedicated sustainability centres or business units responsible for developing and implementing the firm's environmental risk management policies and conducting research and analysis. These dedicated resources and expertise are usually situated at the Group level to develop environmental risk management policies for the insurance group. These group level policies can be adapted as needed to account for risks that are specific to the local entity.
- Sustainability committee/working group: Several insurers have set up committees or working groups comprising employees across different functions of the insurer to be responsible for developing and overseeing the execution of the firm's environmental risk management policies and procedures. These committees report to the insurer's senior management and Board on a regular basis.
- Designated individual(s): Most insurers have also appointed Board and/or senior management members to be responsible for developing and implementing the firm's environmental risk management strategy and policies. A few insurers have done so through the creation of a new senior management role (e.g. Chief Sustainability Officer), while others have appointed an existing senior management member (e.g. Chief Risk Officer) to oversee the development and implementation of environmental risk management policies. These individuals also have the responsibility to ensure that the expectations in the ENRM Guidelines are met.

Case study: A multi-faceted approach to governance of environmental risk

The insurer's Board is designated to undertake overall responsibility for environmental risk management, which is supported by a sub-committee comprising employees across different functions of the insurer.

- Scope of duties: The sub-committee oversees all environmental risk management matters including annual disclosures, risks and opportunities, and formulate policies for execution by its various business units.
- Reporting line: The sub-committee reports to senior management members of the entity, such as the Chief Executive Officer, as well as the Board of Directors.
- Composition of committee: The sub-committee comprises of senior executives across relevant functions such as the Chief Risk Officer, Chief Operating Officer, Chief Investment Officer and Chief Financial Officer, to ensure end-to-end integration of environmental risk considerations across the firm.
- Designating staff to specialize in environmental risk management: To ensure that environmental risk considerations are deeply embedded within investment and underwriting processes, experts in environmental risk management may be appointed. For instance, technical actuarial expertise may be required to formulate the methodology for incorporating climate change considerations in the assessment of the insurer's assets, liabilities, and capital requirements.

2.2 FOCUS AREA 2: STRATEGY

Most insurers have formulated and implemented strategies and plans, to advance their objectives to manage environmental risks and opportunities that materially impact their businesses and the environments in which they operate. Insurers' strategies typically aim to strengthen the insurer's environmental risk resilience and capitalise on opportunities from the transition to a sustainable economy. This is usually captured in the insurer's sustainability strategy and business plans. Key aspects considered include:

- a) Improving resilience of their investment and underwriting portfolios – insurers actively quantified existing risks in their portfolio, and set out roadmaps with quantitative targets to enhance risk management. Risk assessment outcomes (e.g. identification of high-risk sectors) and forward-looking assessments (see Risk Management section) were key inputs supporting the development of roadmaps prioritising material risks. Recognising the growing urgency to transition, insurers have developed structured processes to engage customers and asset managers to support their transition (see Risk Management, Underwriting and Investment sections).
- b) Scaling up sustainable insurance – some insurers have engaged in sustainable insurance initiatives, such as providing insurance coverage for electric vehicles or renewable energy projects.
- c) Reducing the environmental footprint of own operations – insurers have quantified and are actively managing the environmental footprint arising from their internal operations.

While the details of individual insurers' strategies may differ, multiple insurers have made public commitments to contribute to the transition to a sustainable economy and combat climate change, including through participation in global initiatives³. For example, several insurers have joined the Net Zero Insurance Alliance (NZIA) and/or Net Zero Asset Owner Alliance (NZAOA), which are part of the GFANZ. NZIA and NZAOA participation requires insurers to make commitments to align their underwriting and investment portfolios with net-zero emissions by 2050 and set interim targets to do so. Insurers that have joined the NZIA and/or NZAOA have already publicly set interim targets.

Several insurers are existing signatories of the United Nations Principles for Responsible Investment (UN PRI). Signatories are required to publish their targets, report publicly on their impacts and progress, and engage with key stakeholders on these impacts, fostering transparency and accountability. Such public commitments increase visibility around insurers' commitments. When supplemented by the publication of insurers' detailed transition plans or roadmaps, such efforts will enhance insurers' accountability to external stakeholders on their climate and environmental credentials, and provide greater transparency on the financial impact of climate and environmental risks.

Insurers have expanded their planning horizon and put in place a structured process to consider the risks and opportunities brought about by environmental issues, in particular climate change, on their business and strategic plans.

- a) Planning horizon: Several insurers have defined the relevant short-, medium-, and long-term time horizons considered, and the specific environmental-related issues arising in each time horizon that could have a material financial impact on the insurer. While climate change risks may only fully materialise over the longer term, insurers are increasingly incorporating such considerations into the short- and medium-term horizon to account for the physical and

³ At the international level, these include the Paris Agreement, UN PRI, and the recent GFANZ, which includes the NZIA and NZAOA.

transition risks that have already begun to materialise. These shorter timeframes also facilitate the incorporation of environmental risks into short-term business planning horizons.

- b) Impact on business strategy: Some insurers have a structured process to integrate environmental risks into their regular monitoring of the business environment. A few insurers conducted studies to evaluate how environmental risks such as climate change and environmental degradation are changing the insurance landscape in different business lines. The results from these studies are used to inform the insurer's business plans.

2.3 FOCUS AREA 3: RISK APPETITE

Most insurers had taken steps to address environmental risk in their risk appetite framework. Some insurers have developed a qualitative risk appetite statement, while looking to introduce quantitative risk appetite measures. Some insurers that have developed initial environmental risk appetite measures were looking to expand their measures to provide more comprehensive risk oversight and control.

- a) Qualitative risk appetite: Several insurers have developed a qualitative risk appetite statement, such as through a high-level position statement on not insuring higher risk climate-relevant sectors while referring to the insurer's sectoral policies. A few insurers had mentioned the use of its risk management framework to manage environmental risk exposure (such as through exclusions or limitations on insuring industries with material environmental risks) in its qualitative risk appetite statement.
- b) Quantitative risk appetite: A few insurers have developed quantitative risk appetite measures and metrics to monitor and take actions to manage environmental risk, in alignment with their risk appetite. These took the form of quantitative key risk indicators, limits, and tolerance levels. Examples of quantitative risk appetite measures observed included:
- Level of thermal coal emissions by insureds.
 - Percentage of revenue generated from coal in investee companies.

Care would need to be taken by insurers when translating their risk appetite into metrics so as not to result in unintended consequences. For example, a sudden and collective withdrawal of insurance coverage or investment from industry sectors deemed to be of higher climate-related risks could deprive firms of the opportunity to transit.

Further work required to:

- Set a risk appetite clearly articulating the risks, both in qualitative and quantitative terms, in a manner that facilitates strategic alignment of organisational targets across the business (including through use of metrics that can be monitored).

2.4 FOCUS AREA 4: REPORTING

Congruent with their corporate governance structure and risk appetite, several insurers have established processes and controls for regular monitoring, reporting, and escalation to the Board and Senior Management (BSM) on salient environmental risk management matters. Such reporting included topical issues (e.g. regulatory developments), the effectiveness of the insurer's environmental risk management controls and the implementation progress of environmental risk

management roadmaps or initiatives. Examples of how insurers implement these updates to the BSM varied and could include the following:

- Providing updates at BSM meetings: The sub-committees/working groups or designated individuals overseeing environmental risk management will provide updates on environmental-related matters (e.g. recommendation of policies or framework, presentation of risks and opportunities, implementation progress of policies, gap analysis with the ENRM Guidelines) on a regular basis. These updates are usually given as part of a standing agenda item at the BSM meetings or at special meetings convened to discuss sustainability issues.
- Appointing Board members to be part of the sustainability committee: To encourage deeper involvement of the Board on environmental risk management matters, a few insurers have included Board members within the sustainability committee set up within the company. These members would also be able to provide the committee with further guidance on when it is necessary to escalate material environmental risk issues to the Board.

Current reporting to the BSM was largely qualitative in nature, with little quantitative data provided. Insurers are encouraged to enhance their management reporting to facilitate effective oversight of environmental risk and efficient tracking of implementation progress by the BSM. Examples of information which insurers can consider disclosing to the BSM are set out in the box below for reference.

Box: Examples of Key Environmental-related Indicators used in Management Reporting

Metrics supporting environmental risk resilience

- Underwriting portfolio resilience
 - Potential impact on solvency or underwriting results based on environmental stress test scenarios
 - Risk accumulation metrics using locational risk assessment tools
 - Exposures to coal or other climate-relevant sectors
- Investment portfolio resilience
 - Proportion of fund managers who are UN PRI signatories
 - Environmental risk scores of asset portfolios
 - Balance sheet assets qualifying as green, sustainable or transition
 - Updates on green accreditation status of investment portfolios/assets (e.g. attaining green certification for buildings; converting funds to Article 8 or 9 funds under European Union Sustainable Finance Disclosure Regulation)
 - Operational performance of investee companies/assets (more common for direct real estate investments and funding of infrastructure-related projects)
- Operational resilience
 - Potential financial and operational impact of physical risks on insurer operations
 - Actual financial and operational impact of physical risks on insurer operations

Metrics supporting sustainable insurance

- Take-up of sustainable insurance offerings (e.g. assets under management of environmentally friendly investment-linked sub-funds)

Metrics supporting own environmental footprint

- Greenhouse gas (GHG) emissions per headcount across scope 1,2 & 3
- Energy and water consumption
- *See metrics required by SGX and ISSB for more*

Further work required to:

- Enhance risk data aggregation and reporting capabilities to facilitate management oversight (including setting up necessary risk infrastructure, identification of appropriate quantitative metrics, enhancing reporting framework to ensure timely and consistent updating).
- Incorporate periodic updates to management on the outcomes of their forward-looking assessments, including outcomes of regular stress testing and portfolio alignment analysis.

2.5 FOCUS AREA 5: BEHAVIOUR ALIGNMENT

Insurers have established key performance indicators (KPIs) in the form of metrics and targets to monitor the insurer's progress in achieving strategic objectives. These performance measurement indicators are quantifiable and tracked at the relevant governance and risk committees.

Insurers have started incorporating environmental risk management into their incentive structures, to link incentives to performance, promote desired conduct and drive accountability for delivering target outcomes. Insurers should also consider incorporating customised environmental risk-related objectives across functional scorecards, including the risk management function, to strengthen the link between management of environmental risk and remuneration for individuals and functions with specific responsibilities in this area (e.g. underwriters for business lines exposed to climate-related risks). As insurers incorporate environmental risk management considerations in their compensation frameworks, robust governance should be applied, as non-financial measures will require a greater reliance on judgement⁴.

Case Study: Incorporation of environmental risk-related KPIs

For one insurer, 20% of its employees' KPIs were related to ESG factors. In terms of the environmental aspect, the insurer had already incorporated indicators such as paper wastage by the organisation as a whole.

The insurer is also looking to incorporate customised environmental risk-related objectives for individuals and functions with specific roles in environmental risk management. For instance, for the investment function, it plans to include indicators to encourage responsible investing. It also plans to incorporate indicators that measure progress in meeting the environmental risk disclosure targets it had set.

⁴ Financial Stability Board (2021), "Effective Implementation of FSB Principles for Sound Compensation Practices and Implementation Standards: 2021 Progress Report"

Further work required to:

- Integrate and embed environmental risk considerations in the insurer's existing processes, to facilitate implementation of strategic targets (including through incentive structures).

3 RISK MANAGEMENT

The holistic management of environmental risk requires a systematic and consistent approach across an insurer's risk management frameworks and processes, namely risk identification, assessment, monitoring and reporting, and mitigation. To adequately address potential material risks at the institution, portfolio, customer, and transaction levels, a combination of top-down and bottom-up approaches to risk management should be applied.

Customer engagement is an important part of effective environmental risk management and risk mitigation. Insurers can play an active role in facilitating their customers' transition and in turn mitigate their own environmental risks. This includes encouraging customer transition towards sustainable business practices and enhancing their environmental risk disclosures over time.

Relevant Resources

- CFRF Guide 2021 - Scenario Analysis, 2021
- Equator Principles Framework & Guidance Notes, 2020
- GFIT Handbook on Implementing Environmental Risk Management, 2021
- International Actuarial Association, Climate Science: A Summary for Actuaries, 2022
- International Finance Corporation, Environmental and Social Performance Standards, 2021
- NGFS, Scenarios in Action: a progress report on global supervisory and central bank climate scenario exercises, 2021
- Partnership for Carbon Accounting Financials (PCAF), Global GHG Accounting and Reporting Standard for the Financial Industry, 2020
- Science Based Targets Initiative, Financial Sector Science-based Targets Guidance, 2022
- TCFD, TCFD Recommendations Technical Supplement: The Use of Scenario Analysis in Disclosure of Climate-related Risks and Opportunities, 2017
- United Nations Environment Programme Finance Initiative (UNEP FI), Pathways to Paris: A practical guide to climate transition scenarios for financial professionals, 2021
- World Resources Institute/United Nations Environment Programme Finance Initiative

3.1 FOCUS AREA 1: POLICIES AND PROCEDURES

Insurers should have in place an enterprise risk management framework that provides for the identification and quantification of relevant and material risks, including environmental risk. Most insurers had, or were in the process of incorporating environmental risk considerations into their risk management framework. Some of these insurers have developed a standalone environmental risk management framework which sets out the details of how environmental risks are governed within the insurer. Insurers may take a progressive approach towards environmental risk management, starting with more well-established areas such as climate risk where there is a growing set of generally accepted methodologies and practices. Environmental risk management frameworks will need to be constantly updated to reflect the latest developments in risk methodologies and practices. Most insurers review their frameworks and policies on an annual or bi-annual basis.

Several insurance groups have an environmental risk management framework implemented at group level that is applicable to all entities groupwide. Nevertheless, local insurance entities are encouraged to review the relevance of the group framework and consider if any adaptation is required in view of the local entity's portfolio and to ensure adherence with the ENRM Guidelines.

3.2 FOCUS AREA 2: RISK IDENTIFICATION AND ASSESSMENT

After identifying sectors with higher environmental risk, insurers should develop sector-specific policies, which clearly articulate the insurer's expectations towards existing or prospective customers. Insurers are encouraged to apply risk criteria, (e.g. level of GHG emissions, vulnerability to extreme weather events and linkages to unsustainable energy practices, deforestation and pollution) to identify sectors with higher environmental risk. For life insurers, the initial focus should be on identifying high-risk sectors and incorporating sector-specific policies for investment purposes. Some insurers have relied on issuers' ESG reports or third-party ESG research to identify high-risk sectors. General insurers and reinsurers can start by focusing on identifying high-risk sectors and developing sector-specific policies for underwriting purposes, especially if they underwrite environmental-related risks.

For insurers who have developed sector-specific policies to manage environmental risk exposures in their investment portfolios, several have established investment prohibitions and investment limits for certain sectors or regions. For those that have developed sector-specific policies for underwriting, the range of risk management measures include establishing underwriting prohibitions, imposing of policy conditions and setting underwriting limits. The type of approach taken tends to vary depending on the level of environmental risk an insurer is exposed to.

Implementing these actions gradually in a phased and systematic approach minimises the risk of protection gaps and stranded assets. Under this approach, customers and investee companies are encouraged to transition to sustainable business practices over a specified timeline.

Case study: Development of sector-specific business guidelines to manage environmental risk exposures to different sectors

Some insurers have developed business guidelines for sectors with higher exposure to environmental risk. Some of these sectors include agriculture, fisheries and forestry, hydro-electric power, infrastructure, oil and gas. These sector-specific business guidelines contain additional criteria that an underwriter needs to take into consideration when performing the necessary due diligence for those policies. These criteria are usually over and above the standard environmental risk screening done through internal or third-party databases.

For example, in the sector-specific business guideline for policies involving nuclear energy, an insurer included the requirement to assess plans for decommissioning of the power plant and to consider whether an environmental impact assessment of the power plant has been conducted in line with national or international standards.

3.3 FOCUS AREA 3: RISK MANAGEMENT AND MONITORING

Insurers are expected to actively manage and monitor its environmental risk exposures. At the customer level, the insurer should monitor for any adverse environmental-related activity, or potential non-compliance with the insurer's environmental risk policies on an ongoing basis. Based on its risk assessment, some insurers are engaging customers that pose higher environmental risk to encourage improvements in these customers' environmental risk profiles by transitioning towards

more sustainable business practices. Likewise, reinsurers have also been engaging and encouraging their cedants to incorporate environmental considerations in their underwriting processes.

Most insurers are utilising tools and metrics such as weighted average carbon intensity as a measure of environmental risk for their investment portfolio. Most of the general insurers have methods or tools to assess its underwriting exposures to environmental risk, with several insurers beginning to engage high-risk customers and discuss transition or remediation plans.

Further work required to:

- Strengthen ongoing customer monitoring and engagement process.
- Allocate clear responsibilities for environmental risk management according to the three lines of defence.

3.4 FOCUS AREA 4: SCENARIO ANALYSIS

Climate scenario analysis and stress testing is a key tool for assessing the physical and transition risks that could impact insurers financially. It allows insurers to better understand the potential impact of climate-related risks and opportunities under different scenario pathways and could in turn inform their strategic decision-making.

The application of scenario analysis using climate-related risk factors is more commonly used by general insurers in modelling climate-related catastrophe risks relevant to their underwriting portfolio. For life insurers, they are exposed to climate-related risks from an asset owner perspective, as well as through the potential long-term effects of rising temperature on mortality and morbidity. Overall, the application of scenario analysis by insurers to assess climate-related financial risks is a relatively new and developing field. An insurer new to scenario analysis may consider starting with qualitative scenario narratives to explore the potential range of implications. As it gains more experience, it can then consider using quantitative information to describe the potential outcomes and enhance the rigour of its exercises.

Insurers focused their efforts on climate-related risks. Most of the general insurers have started conducting climate scenario analysis, usually in the form of catastrophe modelling for products exposed to climate-related risks. Most of the life and general insurers have also started to look into stress testing climate risks on invested assets covering both physical and transition risks. As a starting point, most insurers have taken reference from climate stress scenarios that were prescribed by regulators, such as scenarios prescribed in the Bank of England's stress test⁵ and the MAS Industry Wide Stress Test⁶. Insurers also drew on publicly available climate scenarios to perform their analyses, for instance those by the IPCC and NGFS.

Many insurers have incorporated climate risk scenarios as part of their Own Risk and Solvency Assessment (ORSA), on top of the climate risk stress testing prescribed by regulators. Each insurer faces a different blend of climate-related risks and opportunities. Insurers are encouraged to continually review the scenarios used to ensure they cover a reasonable and comprehensive range of potential future climate states in order to facilitate a good understanding of the nature of the climate-related risks and opportunities they may face.

⁵ The Bank of England launched a Biennial Exploratory Scenario (BES) exercise on financial risks from climate change.

⁶ MAS conducted the 2021 Industry Wide Stress Test on significant direct insurers and reinsurers, which included a short-term climate risk scenario.

Case study: Comprehensive scenario analysis involving both physical and transition risks, or alternatively known as medium- and long-term horizons

An insurer conducted sensitivity and scenario analyses for time horizons up to 2050 and included various scenarios ranging from 1.5°C to 4°C of average warming using both internal and external models and tools.

Depending on the lines of business tested, the time horizon and range of scenarios were calibrated to better assess the variety of risks and opportunities associated to that line of business.

The insurer also used different scenario providers and a range of scenarios in order to reflect the range of potential future developments as well as to reduce sensitivity to individual scenarios and assumptions.

The analyses were applied on both the assets and liabilities of the balance sheet as well as the insurer's own operations. The insurer applied scenarios that analysed decarbonisation challenges and pathways of sectors and assets, potential stranded assets and technology developments across different sectors. This analysis was used to develop forward-looking criteria for investment decisions with regard to carbon-intensive business models and those with low-carbon opportunities. For this insurer, scenario analysis over long-term horizons were required to make decisions on the overall investment strategy and for specific transactions relating to longer-term investments such as real estate and infrastructure.

Further work required to:

- Institute processes to embed climate and environmental-related risks into scenario analysis by insurers.
- Develop internal capabilities in scenario analysis (e.g. expertise in designing of scenarios and parameters, translation of scenarios to stress factors).
- Strengthen management understanding and usage of scenario analysis results (e.g. in developing business strategies and refining risk management processes).

4 UNDERWRITING

For general insurers and reinsurers that provide coverage for climate-related risks, they are directly exposed to physical risks arising from climate change that may result in extreme losses if not adequately managed. Even though this is not a new risk class, insurers and reinsurers should note that climate change has affected the frequency and severity of these risks.

Insurers' underwriting activities are also impacted by transition risk through public policies, court rulings, consumer and societal pressures, and technological advances. There is a growing expectation for the private sector to take proactive steps to manage environmental risk and reduce its carbon footprint.

Insurers are expected to include their customers' environmental risk factors as part of their overall underwriting assessment and encourage their customers to introduce risk mitigation measures where necessary. As carbon-intensive sectors reduce or suspend their operations in the face of market and public policy pressure, the opportunities for insurers to offer insurance protection for these businesses will diminish as well.

Relevant Resources

- UNEP FI Principles for Sustainable Insurance (PSI), Managing environmental, social and governance risks in non-life insurance business, 2020
- UNEP FI PSI, Public Consultation on the PSI ESG Underwriting Guide for Life and Health Insurance, 2022
- University of Cambridge Institute for Sustainability Leadership (CISL), Insurers in Paris-aligned climate transition: Practical actions towards net zero underwriting, 2021
- Sustainable Insurance Forum (SIF) Scoping Study, Nature-related Risks in the Global Insurance Sector, 2021

4.1 FOCUS AREA 1: INTEGRATING ENVIRONMENTAL ISSUES

All general insurers have integrated environmental risk management in their underwriting process. These insurers have generally incorporated environmental risk assessment in their underwriting guidelines and implemented exclusion clauses or escalation procedures when underwriting higher risk climate-relevant sectors.

Life insurers were of the view that data and studies supporting a correlation between climate risk factors and the impact on mortality and morbidity was not sufficiently established to be incorporated into the underwriting process for individual life insurance policies at this time. However, some insurers have begun actuarial research to assess mortality and morbidity differentials of a specific population to environmental risk.

Case study: Assessing the effects of heat stress on mortality and morbidity risks

An insurer has started to conduct stress testing with mortality and dreaded disease shocks resulting from a significant increase in air temperature.

The shocks were calibrated based on academic studies and research. The insurer noted that currently, the causality between heat stress and mortality or morbidity is still not very clear and different studies and research often use different parameters.

Although this is currently still a nascent area, insurers writing life business should closely monitor the developments in this area so that as more research and data in this area becomes available, life insurers can begin to incorporate these considerations into their stress testing and actuarial modelling processes.

When underwriting group insurance business, insurers have yet to assess the environmental risk impact of the customer and whether the customer is from a climate-relevant sector. However, some insurers are actively exploring how environmental risk can be accounted for when underwriting group insurance for companies that are exposed to higher environmental risk.

4.2 FOCUS AREA 2: DECISION-MAKING

In assessing the severity of environmental risk, most insurers have considered factors such as the customer's track record in managing such risk, and its willingness and ability to take risk mitigation measures. Several insurers have imposed exclusion clauses on high-risk sectors to manage their environmental risk exposures. However, most insurers are of the view that it is important to help their customers transition to more sustainable operations. As such, these insurers have chosen to impose underwriting or renewal conditions and discuss risk mitigation actions for selected policies or customers that are assessed to be high risk, in accordance with the insurer's risk appetite.

Reinsurers generally do not have direct interaction with the underlying insured. Hence, they predominantly engage the ceding insurers to encourage them to develop underwriting policies that consider environmental risks. This is especially so for treaty reinsurance business. For facultative reinsurance business, reinsurers will have more information of the underlying insured and its risks. This allows the reinsurers to perform more in-depth due diligence for such insurance policies.

Case study: Active engagement with customers to discuss risk mitigation actions

An insurer actively engages customers operating in climate-relevant sectors and discusses potential measures the customer could take to address their environmental risk exposure. Conditions are also imposed on the customer to encourage the customer to take active steps to gradually reduce their exposure to environmental risk. For instance, if the maintenance of an insured power plant is not done well, a higher premium will be imposed upon renewal.

The insurer has also set out a roadmap where they will begin to decline coverage for certain higher-risk customers at specific milestones. The insurer will meet these customers and explain the insurer's approach and roadmap to gradually exit these higher risk sectors. This will give the customers a clear timeline to plan their transition to more sustainable operations.

Further work required to:

- Strengthen customer-level risk assessments and engagement (e.g. consider customer's ability and willingness to introduce risk mitigation measures, work with customer to set environmental-related metrics and targets).
- Institute formal processes to manage high-risk customers (e.g. impose underwriting conditions, premium loading, setting exposure limits).

4.3 FOCUS AREA 3: ESCALATING ENVIRONMENTAL RISK TO DECISION-MAKERS

Most of the insurers have a process in place to escalate transactions that exceed certain environmental risk thresholds to the relevant environmental risk specialists within their companies. The escalation procedures are set out in the underwriting guidelines. These specialists generally provide their views and recommendation on the transaction before it is presented to a designated senior management member (e.g. Chief Risk Officer) or a management committee for the final decision. Some insurers have also developed tools to aid underwriters in the identification of such higher risk transactions that require escalation. The tools enable underwriters to screen transactions for their impacts to the environment and provide underwriters with clear guidance on areas to delve further. Such tools also allow for consistent documentation and assessment criteria amongst underwriters. Key policy changes to reduce exposure to environmental risk can also be effected quickly by adjusting the parameters of the tool.

Insurers are also considering automated environmental risk screening capabilities in their underwriting systems. Insurers foresee that the screening of high environmental risk customers or industries will develop over time in a way similar to screening for anti-money laundering/countering the financing of terrorism risks, which is greatly aided by commercial databases and process automation.

4.4 FOCUS AREA 4: MEASURING AND MONITORING UNDERWRITING EXPOSURES

Most of the insurers, in particular insurers that underwrite climate-related risks, employ a wide range of both quantitative and qualitative tools to monitor and assess their underwriting exposures to environmental risk. These include catastrophe modelling, stress testing, monitoring tools for specific climate-relevant sectors (e.g. mining and power generation), as well as tools to monitor risk accumulation in various locations. These monitoring tools have also aided insurers in taking appropriate risk mitigation measures. For example, in order to manage environmental risk concentration in high-risk geographies, some insurers have set underwriting limits on specific risks (e.g. natural hazards) within specific locations.

Further work required to:

- Institute formal processes to measure and monitor underwriting exposures to environmental risk, using appropriate qualitative and quantitative indicators.

5 INVESTMENT⁷

Environmental risks are wide ranging and constantly evolving. Insurers should put in place appropriate processes and systems to systematically assess, monitor, and manage the potential and actual impact on individual investments and portfolios on an ongoing basis.

Insurers should consider engaging their asset managers and investee companies to encourage the latter to transition towards more sustainable business practices. The insurance sector is among the largest groups of institutional investors globally. For life insurers in particular, a significant portion of the industry's revenue is derived from investment income. Factoring environmental risks into their investment processes (for both new and existing investments) will minimise losses from holding stranded assets.

Relevant Resources

- Financial Sector Science-Based Targets Guidance, 2022
- International Finance Corporation's Performance Standards
- PCAF: Global GHG Accounting and Reporting Standard for the Financial Industry
- UN PRI: Asset Owner Resources

5.1 FOCUS AREA 1: ONGOING MONITORING

Most of the insurers have in place processes and systems to monitor, assess and manage their potential and actual exposure to environmental risk in their investment portfolios on an ongoing basis. Common actions undertaken include setting carbon targets, portfolio restrictions, divestment from higher risk climate-relevant sectors and portfolio rebalancing to invest in more green assets. For most of these insurers, management of the investment portfolio are outsourced to external asset managers. These insurers rely on the external asset managers to embed environmental risk considerations into their investment selection process, and for ongoing monitoring of the environmental risk exposures of their investment portfolio. The asset managers are also expected to provide environmental risk-related data on the insurers' portfolio for disclosure purposes.

Insurers are encouraged to consider environmental impacts from both a macro, top-down, as well as from a more granular bottom-up asset selection perspective. For example, a top-down approach may involve monitoring the carbon emissions of a portfolio and setting carbon emission targets for the portfolio, while a bottom-up approach may involve analysing environmental risk ratings via third-party ESG reports of individual assets and investee companies.

Most insurers utilise external data providers that provide ESG assessments, ratings and carbon emissions data. Several insurers with in-house environmental risk expertise have also developed their own indicators and scoring system to assess the environmental risk exposure of its investments.

A common challenge highlighted by many insurers is the lack of reliable environmental risk data, and more broadly, ESG data on the assets they invest in. Private assets and sovereign debt were the two most challenging asset classes for insurers to obtain ESG and carbon emissions data on.

To work around these data gaps, some insurers have opted to set investment restrictions on sovereign debts from countries with purported higher environmental risk. Others have attempted

⁷ Insurers with investment activities should also refer to the relevant sections of the Information Paper on Environmental Risk Management (Asset Managers), for sound practices on the management of environmental risk with respect to investments.

to estimate the environmental risk rating using proxies, such as by looking at the country's public equities' exposure to environmental risk. Most insurers have gone on to exclude sovereign debts and other assets without reliable emissions data when disclosing the overall carbon emissions of their investment portfolio. Given that a significant proportion of insurers' investments are in debt instruments, we encourage insurers to collaborate with the wider financial sector and data providers to work towards measuring and assessing the carbon emissions of underlying issuers in this asset class more reliably and adopt appropriate risk management actions. This will also allow insurers to reflect the carbon emissions more accurately in their investment portfolio in their sustainability disclosures.

Most of the insurers are largely cognisant of the need to monitor the environmental risk exposure of their investment portfolio on an ongoing basis and have implemented processes to do so. For instance, some insurers have set an ESG score threshold for their investments and have implemented a process for reporting investments that fall below the threshold to the investment committee for closer monitoring.

Insurers also appreciated the need to regularly review and adjust their investment policy and strategy to mitigate the impact of any significant risks on their portfolios. Environmental risk management policies, including investment-related policies and targets are reviewed, at least annually, or whenever there are trigger events such as material changes in environmental risk factors, policies or regulations.

5.2 FOCUS AREA 2: PROMOTION OF RESPONSIBLE BUSINESS BEHAVIOURS

Insurers are encouraged to engage with individual investee companies and asset managers, as appropriate, to help shape the corporate behaviour of investee companies positively. This includes supporting investee companies' efforts in the transition towards more sustainable business practices. Insurers should engage their asset managers regularly to understand the asset managers' investment policies in relation to environmental risk to ensure that these are consistent with the insurer's environmental risk appetite. Insurers should also communicate their environmental risk expectations to their asset managers, to encourage and promote good environmental risk management behaviour and practices.

Case study: Active and regular engagement with asset managers

Although the majority of the insurer's assets are externally managed, the insurer actively engages its asset managers through regular dialogues to understand the asset manager's environmental risk practices and to communicate the insurer's expectations on environmental risk management practices.

Through such engagement, the insurer has observed an increase in its asset managers signing on as UN PRI signatories and an increase in its asset managers tracking their engagement with investee companies. The asset managers are also starting to provide environmental risk disclosures on a regular basis. Asset managers are also asked to provide copies of their engagement reports, alongside UN PRI or related sustainability reports to the insurer for monitoring purposes.

Most of the insurers have requested their asset managers and investee companies to provide environmental-related data. However, due to the differences in data, metrics and format of the reports provided, insurers found it difficult to aggregate the information collected and compare across the different reports. Over time, we expect companies to converge to internationally aligned metrics and disclosure standards, making it easier for insurers to aggregate and compare the data collected across different asset managers and investee companies for investment analysis and decision-making.

Further work required to:

- Engage asset managers and investee companies to shape their corporate behaviour with regard to environmental risk and to communicate the insurer's environmental risk management expectations to these asset managers and investee companies.

6 DISCLOSURE

Disclosures need to be consistent, comparable, and reliable for better pricing of climate-related risks and opportunities, effective risk management and market discipline, and effective deployment of capital towards financing green and transition activities. Insurers are expected to disclose their approaches to managing environmental risk in a manner that is clear and meaningful to their stakeholders, and for such disclosures to be consistent with their internal risk appetites and strategies.

- Disclosures are also expected to be made in accordance with well-regarded international reporting frameworks, such as recommendations by the Financial Stability Board’s TCFD for climate-related disclosures.
- To facilitate the development of high-quality globally comparable sustainability information, the International Financial Reporting Standards (IFRS) Foundation’s ISSB is developing climate-related disclosure requirements that may become the global baseline sustainability reporting standards should these be endorsed or supported by the financial sector standard-setting bodies such as International Organisation of Securities Commissions and the International Association of Insurance Supervisors (IAIS).
- In Singapore, SGX has set out a roadmap for mandatory climate reporting for listed issuers aligned with the TCFD recommendations. MAS will be setting out a roadmap for mandatory climate-related disclosures for financial institutions (FIs) in line with global baseline sustainability reporting standards.

Insurers have reviewed and enhanced their environmental risk disclosures in a progressive manner. As their risk management capabilities matured, insurers have been increasingly able to provide disclosures on more environmental-related factors, such as by enhancing the disclosed quantitative metrics and targets, qualitative description of factors and risk management practices. MAS looks forward to continued improvements by insurers to enhance their environmental risk disclosures.

Relevant Resources

- CFRF Guide 2021 – Disclosures – Managing Legal Risk, 2021
- GFIT Financial Institutions Climate-related Disclosure Document, 2021
- ISSB Exposure Draft IFRS S1 General Requirements for Disclosure of Sustainability-related Financial Information, 2022
- ISSB Exposure Draft IFRS S2 Climate-related Disclosures, 2022
- SGX Consultation Paper and Response on Climate and Diversity: The Way Forward, 2021
- SGX Consultation Paper and Response on Starting with a Common Set of Core ESG Metrics, 2021
- TCFD 2021 Status Report, 2021
- TCFD Guidance on Metrics, Targets, and Transition Plans, 2021
- TCFD Implementing the Recommendations of the Task Force on Climate related Financial Disclosures, 2021
- TCFD Knowledge Hub

6.1 FOCUS AREA 1: FORM, FREQUENCY AND REVIEW OF DISCLOSURES

Insurers made environmental risk disclosures as part of their annual reporting cycle. This was typically accomplished through inclusion in the annual reports and standalone sustainability reports. Issuance of sustainability reports concurrently with the annual report or within a few months after the end of the financial year provided stakeholders with more holistic information to facilitate timely decision-making.

Insurers supplemented annual disclosures with more information on their website.

- a) **Many insurers have set up dedicated webpages or microsites to share information on their sustainability efforts,** including details such as their sustainability framework, governance structure and other sustainability initiatives. The use of webpages or microsites provides a mode of disclosure that facilitates ad-hoc updates to information and is readily accessible to stakeholders.
- b) **Several insurers published their environmental risk management policies.** This could include enterprise-level environmental risk management policies and sector-specific underwriting and investment policies for sectors with higher environmental risks, including prohibitions and exposure limits. Publication of the insurer's risk management policies provides transparency to stakeholders by conveying the insurer's commitments and internal controls for environmental risk management to its customers and other stakeholders.
- c) **Several insurers published ad-hoc information,** relating to announcements of their environmental risk management initiatives and salient developments, on their websites and through media releases, to keep stakeholders informed on a timely basis.

Insurers reviewed their environmental risk disclosures regularly, at least annually, to update and improve their disclosures. As their risk management capabilities matured, insurers were able to provide disclosures on more environmental-related factors, including quantitative metrics and targets, and qualitative descriptions of factors and risk management practices.

6.2 FOCUS AREA 2: REPORTING FRAMEWORKS UTILISED

Insurers were mainly using the TCFD recommendations as a framework for their climate-related risk disclosures. The TCFD recommendations are well regarded internationally, and there has been movement towards international convergence of global baseline sustainability reporting standards issued by the ISSB, built on the TCFD recommendations.

International developments on global baseline sustainability reporting standards

In November 2021, the IFRS Foundation set up the ISSB to oversee a programme of work to develop a comprehensive global baseline of sustainability disclosure standards, starting with climate. On 31 March 2022, ISSB launched a consultation on its first two proposed standards by publishing Exposure Drafts on the proposed disclosure requirements. One sets out general sustainability-related disclosure requirements and the other specifies climate-related disclosure requirements.

The ISSB is seeking feedback on the proposals over a 120-day consultation period closing on 29 July 2022. It will review feedback on the proposals in the second half of 2022 and aims to issue the new Standards by end 2022, subject to the feedback received.

The ISSB Exposure Drafts build upon the TCFD recommendations and incorporate industry-based disclosure requirements derived from the Sustainability Accounting Standards Board (SASB) Standards. When the ISSB issues the final requirements, they will form a comprehensive global

baseline of sustainability disclosures designed to meet the information needs of investors in assessing enterprise value.

In addition to the TCFD recommendations, several insurers also aligned their reporting to other well-regarded sustainability reporting frameworks such as the Global Reporting Initiative for a multi-stakeholder perspective, the SASB⁸, and the Carbon Disclosure Project, which provides guidance on disclosure of environmental data including GHG emissions.

6.3 FOCUS AREA 3: CLIMATE-RELATED DISCLOSURES UNDER TCFD RECOMMENDATIONS

Insurers should align their climate-related risk disclosures with well-regarded international reporting frameworks for consistent, comparable, comprehensive, and decision-useful climate-related disclosures. The TCFD recommendations provide a useful, globally accepted framework for the disclosure of climate-related risks across four overarching areas – governance, strategy, risk management, and metrics and targets – and 11 associated recommended disclosures.

To guide reporting entities, TCFD has issued both general and sector-specific guidance, as well as additional supporting materials, on implementing the TCFD recommendations. In 2021, TCFD published its annual progress status report⁹ and made material updates to its guidance¹⁰, as well as provided additional guidance¹¹ on specific topics. In particular, the Supplemental Guidance for the Financial Sector – Insurance companies, under the Annex of the TCFD Recommendations Report, provides practical implementation guidance on the information that insurers should seek to integrate as appropriate in their-climate-related disclosures.

Most insurers have made disclosures across most of the TCFD recommendations but the extent of compliance varied across insurers. Several insurers had started making annual disclosures in accordance with the TCFD recommendations for a few years, while others were still working towards publishing their first TCFD-aligned disclosures. For insurers that were ahead in the disclosure space, we noted that the disclosures progressively aligned towards full compliance with the TCFD recommendations over the years. For instance, many insurers started out by disclosing only Scope 1 and 2 emissions but are beginning to incorporate Scope 3 emissions as data availability and quality improves. These observations were in line with the broader insurance industry progress as set out in

⁸ SASB merged with the International Integrated Reporting Council to form the Value Reporting Foundation (VRF) in 2021. VRF will be consolidated into the IFRS Foundation's ISSB by June 2022.

⁹ TCFD (2021), "2021 Status Report: Task Force on Climate-related Financial Disclosures"

¹⁰ TCFD released updates to the implementation guidance (Annex) initially published in 2017 with the TCFD Recommendations Report. The revised 2021 Annex updates specific elements of the general guidance and the Supplemental Guidance for the Financial Sector for certain recommended disclosures within the Strategy and Metrics and Targets recommendations.

¹¹ TCFD published a Guidance on Metrics, Targets, and Transition Plans to further support financial statement preparers in disclosing decision-useful information and linking those disclosures with estimates of financial impacts. Such information will help users better assess their investment, lending, and underwriting risks – and inform paths and progress toward net zero. The financial impacts section describes how climate-related metrics, targets, and information from transition plans provide useful information with which to estimate the financial impacts of climate-related issues.

the TCFD 2021 Status Report, which reported that insurers' disclosures of information in alignment with TCFD recommendations were in-progress¹² but have improved over time.

Governance

Disclosures in governance were relatively more advanced than the other areas. Most insurers had disclosed their governance structures and the roles of the BSM in addressing climate-related risks and opportunities (including descriptions on the roles and responsibilities of the relevant committees and personnel). However, information on how the BSM monitored climate-related issues, such as processes and meeting frequencies of the relevant committees, were not always disclosed.

Good practices observed included clear and detailed descriptions of board oversight and management roles in relation to climate-related issues. This included the processes and frequency by which the BSM and/or committees were informed about issues, how leadership monitors and oversees progress against goals and targets, and the associated governance and reporting structure. Some insurers provided useful illustrations and detailed descriptions on their organisational charts and roles and responsibilities for climate-related governance. One insurer included details of various environmental risk management policies (e.g. responsible investing policy, policies to manage the direct environmental impact by the insurer) and the respective individuals in charge of the policy, as well as the last date where the policies were reviewed. Disclosure of such information helps to hold the leadership team accountable to reviewing and enhancing the various environmental risk management policies over time. Disclosure of remuneration policies, as important incentives for achieving an organisation's goals and objectives, may also provide insight on an organisation's governance, oversight, and accountability for managing environmental-related issues.

Strategy

While most insurers reported a wide range of information on the potential and actual impacts of climate-related risks and opportunities¹³, the information and level of details could be improved. Insurers had broadly disclosed the impact of different risk categories (e.g. physical risks, transition risks) on their insurance business. In general, the insurers with inadequate disclosures had yet to commence or complete their assessments and scenario analyses on the impacts of climate change on their business. Only a few insurers had described the resilience of their business strategies to the different climate-related scenarios, including a 2°C or lower scenario.

Good practices by insurers observed included:

- Presenting a clear mapping of the various climate-related risks and opportunities identified over the short, medium, and long term, with the respective time horizons defined clearly.
- Disclosures on risks and opportunities were complemented with descriptions of their potential impact on the insurer's strategies, the insurer's strategic responses and actions, as well as associated targets and KPIs and progress made.
- Using multiple scenario analyses, a few insurers were able to disclose quantitative results on the potential impact of climate-related transition and physical risks on the insurer's business

¹² Based on TCFD's review of 132 insurers' reports, less than 60% of insurers disclose information aligned with TCFD recommended disclosures for each of the 11 TCFD recommended disclosures. For four of the 11 recommended disclosures, the percentage of insurers disclosing relevant information was lower than the average across all companies reviewed.

¹³ For guidance on climate-related risks and opportunities and their associated financial impacts to be disclosed, refer to TCFD (October 2021), Implementing the Recommendations of the Task Force on Climate related Financial Disclosures (pp. 9,74).

and financials, quantifying the impact to their investment portfolio or the impact on the insurer's underwriting results.

Several insurers also disclosed their transition plans, an aspect of their overall business strategy that lays out a set of targets and actions supporting their transition toward a sustainable economy, including actions such as GHG emissions reduction commitments. Organisations' transition plans are of particular interest to stakeholders, especially when they are seeking to verify the credibility of the organisations' commitments related to climate change. Insurers may refer to the TCFD Guidance on Metrics, Targets and Transition Plans, which sets out useful guidance on the characteristics of effective transition plans, transition plan considerations, and disclosure of transition plan information.

Risk management

Most insurers had described their policies and processes to identify, assess, manage, and integrate climate-related risks, of which several have also done so comprehensively across material risk categories. Comprehensive coverage by these insurers included identification and assessment of climate-related risk on insurance and reinsurance portfolios by geographical business division, or product segments and take into consideration different risk types (e.g. physical risks, transition risks, liability risks). The remaining insurers had broadly described how environmental risk management was integrated into their overall risk management. Similarly, only about half of the insurers have described their use of climate-related scenario analysis for risk management in their disclosures. Even fewer referred to stress testing, although most insurers have disclosed that work in these areas were in-progress.

Good practices observed included detailed descriptions of the insurer's key tools used to manage environmental risks in the product development, pricing, underwriting and investment processes, including decisions to mitigate, transfer, accept, or control those risks. Insurers that have integrated climate-related risks into their underwriting and investment policies described their sectoral approach towards risk mitigation such as prohibition and restrictions or heightened customer engagement in the identified higher risk sectors. One insurer published its environmental risk management framework, which included specific guidance for different sectors and detailed the various steps in the due diligence and decision process. Another insurer provided a summary of the various tools it utilised to assess environmental risk in its investment portfolio and mapped them to the relevant risk types and relevant asset classes that the tool was intended to manage.

Metrics and targets

Insurers cited metrics and targets as a key area for improvement for disclosures, as insurers were still in the process of developing or strengthening their methodologies to measure risks, opportunities and set targets. While most insurers had disclosed some form of quantitative metrics and targets used to assess climate-related risks and opportunities, and their GHG emissions, the comprehensiveness of these disclosures could be improved.

Most insurers had focused on carbon-related metrics, with some insurers also disclosing climate-related metrics associated with water, energy, and waste management¹⁴. On the investment front, carbon-related metrics may not be available for certain assets (e.g. private assets and sovereign debt) and were typically excluded from the computation of the carbon intensity of the overall portfolio. It was noted that a few insurers had also disclosed the coverage ratio, which shows the percentage of the portfolio that the relevant disclosures have accounted for. Such disclosure could hold insurers

¹⁴ SGX list of 27 Core ESG Metrics also included 7 environmental-related metrics covering Greenhouse Gas Emissions, Energy Consumption, Water Consumption and Waste Generation. Refer to SGX consultation on "Starting with a Common Set of Core ESG Metrics" issued on 26 August 2021, and the consultation response issued on 15 December 2021.

accountable to gradually improve their coverage ratio and provide a more accurate representation to readers.

Some insurers have started using and disclosing forward-looking metrics for transition risk. Insurers have introduced metrics to measure the portfolio alignment with GHG emissions targets aligned with specific climate goals, such as the goals of the Paris agreement, and portfolio alignment in terms of degrees of warming against the current global emissions and temperature trajectory.

All insurers that have started publishing environmental risk disclosures were able to report their Scope 1 and 2 GHG emissions. Insurers typically utilise an internationally accepted GHG accounting system, such as the GHG Protocol, to measure their Scope 1 and 2 GHG emissions, which relates to their own operations. Insurers have also disclosed their methodologies and emission factors used.

Insurers still face challenges in the reporting of Scope 3 GHG emissions due to data gaps, which they have tried to overcome via data collection or proxies. Scope 3 GHG emissions arising from the insurer's investment or underwriting activities were typically the predominant component of overall GHG emissions for insurers. Nonetheless, most insurers had disclosed their Scope 3 GHG emissions without incorporating the full downstream impact, for example, only capturing the Scope 3 GHG emissions derived from air travel undertaken by employees for business trips, given challenges to capture the emissions generated by investees and insureds due to data unavailability. Several insurers collected emissions data directly from insureds and asset managers or from third-party service providers, while other insurers explored proxy methodologies like the PCAF¹⁵.

The climate-related metrics disclosed were not always accompanied by targets, making it harder to assess the insurer's performance. Some insurers had only set high-level targets, such as a long-term target on total sustainable assets or achieving net-zero emissions. Fewer insurers had short-term and medium-term targets, or targets to reduce the carbon-intensity or manage concentrations of underwriting exposure to carbon-related assets across higher risk sectors in their portfolios by stipulated timelines. With the increasing focus on transition plans and interim target setting to track progress more effectively, insurers are increasingly assessing the value of setting targets and measuring their progress against such targets.

Metrics and targets reported are continuing to evolve as data becomes more available and international standards develop. Insurers may refer to the TCFD Guidance on Metrics, Targets and Transition Plans, which sets out useful guidance on climate-related metrics¹⁶ and targets¹⁷, and the Common Set of Core ESG Metrics¹⁸ published by SGX, which included a set of seven commonly used environmental-related metrics. The ISSB Exposure Drafts IFRS S1 General Requirements for Disclosure of Sustainability-related Financial Information and IFRS S2 Climate-related Disclosures includes requirements to disclose, inter alia, (i) transition plans towards a lower-carbon economy; (ii) management targets to mitigate or adapt to climate risks or maximise climate-related opportunities and KPIs on progress against these targets; and (iii) results of scenario analysis (or alternative approaches such as qualitative analysis, sensitivity analysis and stress tests) with an assessment of associated implications of the resilience of the company's strategy and business model over different time horizons.

¹⁵ PCAF released the Global GHG Accounting and Reporting Standard for the Financial Industry in November 2020, which outlines methodologies for measuring financed emissions for specific asset classes in line with the GHG Protocol.

¹⁶ Refer to Cross-Industry, Climate-Related Metric Categories and Example Metrics (pp. 16-17) in the Guidance.

¹⁷ Refer to Examples of Quantified Targets (pp. 33) in the Guidance.

¹⁸ SGX published on 15 December a list of 27 Core ESG Metrics for issuers as guidance to assist issuers in providing, and investors in accessing, an aligned set of ESG data. These metrics include 7 environmental-related metrics covering GHG Emissions, Energy Consumption, Water Consumption and Waste Generation.

Further work required to:

- Iteratively enhance transparency around the materiality of climate and environmental-related risks to the insurer's operations (e.g. through usage of qualitative explanations on the potential impact of climate change on the insurer's business, strategies, and financial planning, supported by quantitative metrics)
- Iteratively enhance transparency around steps the insurer is taking to manage climate and environmental related risks (e.g. how the BSM monitored climate-related issues, insurer-wide strategy and approach)

6.4 FOCUS AREA 4: ASSURANCE

While insurers recognise that assurance can enhance the credibility of disclosures, most insurers have yet to obtain such validation. The absence of globally recognised standards or frameworks for assurance, as well as the evolving understanding have posed challenges to insurers. This could entail greater reliance on independent review as a pragmatic and practical approach to improving reliability of climate-related disclosures, as the ecosystem to support quality external assurance of climate reports continues to develop.

Most insurers had not engaged their internal audit function to obtain internal assurance for their environmental risk disclosures. Insurers have instead chosen to place reliance on their internal controls and checks to ensure that their disclosures are accurate.

Reviews by the internal audit function on the insurer's sustainability reporting process for environmental risk disclosures could build on the insurer's existing governance structure and internal controls. This would be in line with the expectation for internal audit to review the robustness of the insurer's risk management framework, which would include environmental risk. The internal audit function may involve relevant functions, such as risk management, sustainability, or other specialist functions. Internal audits should be conducted in accordance with the International Standards for the Professional Practice of Internal Auditing issued by The Institute of Internal Auditors. The upcoming ISSB disclosure standards, a potential global baseline of sustainability-related disclosure standards, can also form the basis for the development of an audit and assurance framework. On this front, the International Audit and Assurance Standards Board will assess the need to enhance its existing framework and guidance on assurance standards for sustainability reporting in line with the development of ISSB disclosure standards.

A few insurers have obtained external assurance¹⁹ on a limited scope, while others are considering following suit, to add credibility to their disclosures. Engagements with auditors included:

- a) Verification of quantitative environmental data such as GHG emissions reported in the insurers' sustainability reports, in accordance to established reporting standards such as the GHG Protocol.
- b) Verification of qualitative and quantitative sustainability disclosures, in line with sustainability reporting frameworks.

¹⁹ External assurance if performed, should be done in accordance with recognised assurance standards, for example the International Standard on Assurance Engagements (ISAE) 3000, the Singapore Standards on Assurance Engagement (SSAE) 3000, the AA 1000 Assurance Standards or the ISO. Where insurers have conducted external assurance on the environmental risk disclosures, to provide transparency to users of the reports, they should disclose (a) that external assurance has been conducted; (b) the scope covered; (c) the identity of the external assurer; (d) the standards used; and (e) key findings.

Insurers that wish to obtain external assurance should scope the assurance to obtain meaningful outcomes. The scope of assurance may include materiality assessment and cover different aspects of the environmental risk disclosure process, such as data and its associated data collection process, narratives, compliance with the specified reporting framework (such as the TCFD recommendations), process to identify sustainability information reported, and compliance with applicable rules and regulations. Insurers can consider independent external assurance on selected important aspects of its environmental risk disclosures in the initial years, and to expand the scope in succeeding years.

Further work required to:

- Take steps to assure stakeholders on the robustness of insurers' processes around management and disclosure of environmental risk (e.g. through independent review, internal audits, external assurance).

6.5 FOCUS AREA 5: DISCLOSURES FOR ENVIRONMENTAL RISKS BEYOND CLIMATE

Few insurers have made disclosures around environmental risks beyond climate change. A minority of insurers have published mainly qualitative information on other environmental risks such as pollution, loss of biodiversity. This information included:

- a) Commitments to preserve biodiversity;
- b) Sector-specific underwriting or investment policies for sectors exposed to environmental risk beyond climate change (e.g. fishery, forestry); and
- c) Considerations of the impact of environmental degradation on business strategies and risk profile.

Case study: Publication of Biodiversity Strategy

An insurer published its biodiversity strategy to reaffirm the insurer's commitments and initiatives to help preserve biodiversity. The strategy included the recognition of biodiversity-related risks and opportunities, the insurer's commitments to preserving biodiversity and its involvement in various initiatives and working groups to develop biodiversity risk-related guidelines for financial institutions and promote the protection and restoration of biodiversity.

The strategy also articulated the insurer's various levers of action to integrate the preservation of biodiversity to its business and processes:

- Development of underwriting policies to restrict insuring of sectors that contribute to biodiversity loss;
- Allocation of investments towards funds focused on biodiversity protection;
- Active support on academic research on biodiversity risks and how insurers should manage them; and
- Reduction of the insurer's direct impacts on biodiversity.

Although the frameworks and methodologies around the reporting of environmental risks beyond climate were nascent, insurers looked to stay abreast of ongoing developments and augment disclosures over time. To this end, several financial institutions have joined private sector initiatives such as the Taskforce on Nature-related Financial Disclosures (TNFD) and Finance for Biodiversity

(F4B), which are working towards the development of consensus metrics and methodologies, tools and resources for the measurement, management and reporting of nature-related impacts and dependencies. Insurers are closely monitoring upcoming developments around nature-related risks, for example:

- (a) The G20, in its Sustainable Finance Roadmap²⁰, stated that the ISSB should extend its initial focus on climate to other sustainability topics such as biodiversity and social issues. The Climate Disclosure Standards Board (CDSB) which was consolidated into the ISSB in January 2022, published a new Biodiversity Application Guidance²¹ in November 2021 to assist companies on biodiversity-related financial disclosures within the mainstream report. This guidance is aligned with the TCFD recommendations and intended to be compatible with the ISSB Climate and General Requirements Standards, prior to the issuance of an ISSB biodiversity standard.
- (b) EU's Corporate Sustainability Reporting Directive which will apply to all large and/or listed companies. The European Financial Reporting Advisory Group (EFRAG) will develop mandatory sustainability reporting standards which will cover the six EU environmental objectives, including biodiversity and ecosystems. The standards are intended to take effect in 2024.

Further work required to:

- Stay abreast of ongoing developments of disclosures on environmental risks beyond climate, particularly around nature-related risks such as loss of biodiversity, and consider augmenting disclosures on nature-related risks over time.

²⁰ G20 Sustainable Finance Roadmap (2021)

²¹ CDSB (2021), "CDSB Framework Application guidance for biodiversity-related disclosures"

7 CAPACITY BUILDING & CULTURE

An organisational culture with strong awareness of environmental risk and its impact on the insurer, is an essential enabler for insurers to navigate the transition to a sustainable economy. The transversal and evolving nature of risks and opportunities, as well as the variety of ways in which insurers may address them, necessitates an institution-wide understanding.

Relevant Resources

- Asia Sustainable Finance Initiative Knowledge Hub
- GFIT Capacity Building Series, 2021
- Institute for Banking and Finance (IBF) Sustainable Finance Technical Skills and Competencies (TSC), 2022
- International Finance Corporation Financial Institutions: Resources, Solutions and Tools
- SIF resources
- United Nations Environment Programme resources
- United Nations Global Compact Academy E-learning Course on Science-Based Targets

7.1 FOCUS AREA 1: BOARD AND SENIOR MANAGEMENT

All insurers had sought to increase their BSM's understanding of environmental risks, recognising the importance for direction and tone to be set from the top. Sufficient understanding of both the risks faced and opportunities presented are key to enabling the BSM to respond in an appropriate manner when determining risk appetites and business strategies.

Most insurers have approached this via direct upskilling through training²². Training for BSM thus far was observed to be typically less structured and often driven by external developments such as the launch of regulatory guidance or reputational risk events, and leveraged external expertise (e.g. consultancies) in relation to specific topics.

With increased internal awareness and external attention, the breadth and complexity of the topic may necessitate more structured and regular training. One insurer has introduced environmental risk management training for its board, to be conducted on an annual basis. Insurers should consider making environmental risk management training a mandatory constituent of the director or senior management's onboarding process. When delivering such training, it is good practice to cover a range of issues to establish a comprehensive understanding of the subject, particularly in areas that may impact the organisation's longer-term strategy and governance. Areas covered within BSM training may include:

- Terminology and definitions (e.g. transition risk, physical risk)
- Goals of the Paris Agreement, the move to net-zero, and their scientific background
- Global impacts of different temperature scenarios, with a focus on core geographies
- Drivers and transmission channels for climate-related and environmental risks
- Risks and opportunities of the transition to a sustainable economy, including decarbonisation pathways

²² SGX has mandated training for all directors of listed entities to undergo training on sustainability in their "Response Paper on Climate and Diversity: The Way Forward" issued on 15 December 2021.

- Regulatory developments
- Practices of peer organisations
- Insurer-specific elements: Strategy, Risk Framework, sector policies and wider initiatives (e.g. sustainable financing goals, TCFD reporting, capacity building programmes)

Insurers had also complemented direct training with other approaches to develop knowledge at the BSM level:

- Direct hiring (e.g., through creation of Chief Sustainability Officer Role) – this approach was taken by several insurers. Such expertise is useful to ensure in-depth expertise for sound and informed decision making, but a sufficient team supporting the hire needs to be built up to avoid key man risks.
- Utilisation of external expertise (e.g., through an advisory panel) – this approach has been taken by a limited number of insurers, allowing direct, and potentially fast, access to deep subject matter expertise. However, in isolation it may be insufficient for the full integration of environmental and climate-related considerations into all aspects of BSM decision-making.

Building knowledge and developing understanding among the BSM may allow them to act as environmental risk advocates. This may include delivering speeches, participating in panel discussions or endorsing training programmes. Such recognition may help to highlight the importance of the issue and increase acceptance across the business.

Further work required to:

- Create a continuous learning model for the BSM, reflective of the rapidly evolving nature of environmental risk understanding.
- Ensure awareness and understanding of environmental risk is sufficiently developed within a range of BSM members, so that it be taken into consideration in all aspects of business decision making.

7.2 FOCUS AREA 2: ORGANISATIONAL CULTURE AND CAPACITY DEVELOPMENT

Most insurers have begun to build capacity across the organisation to better integrate consideration of environmental risks in a holistic manner. The cross-cutting nature of environmental risks requires that they be taken into consideration at all levels and areas of business operations. Given the limited talent in this field, the risk of competence greenwashing²³ has also been observed. Relying on external hires alone may not scale the increased environmental risk awareness that will be required at all levels of the organisation.

Training was initially targeted at staff members directly responsible for the implementation of environmental risk policies, such as underwriters dealing with climate-relevant business lines, and focused on information that was directly relevant to their work. Such training was typically mandatory and began at onboarding to emphasise the significance of the subject and expectations of the employee's role. Further upskilling may then be provided on a regular and ongoing basis as understanding of risks and the insurer's subsequent responses evolve.

Training would then typically expand over time in breadth of audience and depth of content. Some insurers made high-level training available for all staff members, with more in-depth modules for the

²³ Competence greenwashing refers to the misrepresentation of knowledge, skills, competencies, or expertise relating to sustainability-related activities.

staff whose job scope was more directly impacted. Such modules may focus on certain areas of the business, product types or thematic areas (e.g. climate data). Other insurers had sought to develop overarching training programmes, with a modular curriculum. Recognising the time limitations faced by the audience, many insurers developed repeatable and less resource intensive training methods such as e-learning modules or reading materials.

Structured capacity building exercises were typically supplemented by more periodic communication. These included workshops, newsletters, ‘Lunch & Learn’ events and video messages. Such informal, typically bite sized, messaging may be more easily absorbed by staff who are time constrained or less directly engaged in the field in their day-to-day activities. In addition, regular and reinforcing messaging can help foster a culture where environmental risks are front of mind.

In-house training was also complemented by leveraging existing training providers outside the organisation. Numerous FIs cited the usefulness of the GFIT’s capacity building efforts. In addition, some insurers had sought to engage non-governmental organisations, industry certification bodies or academic institutions, who would be more familiar with the latest scientific advances or who were specialised in certain sectors. Where appropriate, insurers could also consider enlisting relevant staff in structured, certified courses offered by professional bodies²⁴.

Globally and regionally, there are increasing numbers of training courses that insurers can tap on to build internal capacity. In Singapore, MAS is also committed to ensuring that workers and local enterprises are upskilled and supported to adopt sustainability practices. See Key Challenges section.

Further work required to:

- Reinforce the transverse nature of environmental risks, and the importance of its consideration at all levels and areas of business operations.
- Develop tailored skill sets within all departments in a structured manner, utilising external expertise from a range of sources where insufficient knowledge currently exists within the insurer.

7.3 FOCUS AREA 3: BUILDING STAKEHOLDER AWARENESS AND CAPACITY

Most insurers have recognised that there is value to building awareness on environmental risk among their key stakeholders, such as customers, asset managers and investee companies. By offering capacity building, insurers provide their customers or asset managers with a valuable service that deepens their relationship. Improved awareness and understanding of environmental risks have several benefits:

- Encourages a prudent response to the environmental challenges, reducing future risks to the insurer.
- Increases receptiveness to the insurer’s information requests required for environmental risk analysis. Insurers can better explain their approach to environmental risk management, helping stakeholders realise the importance of the issue and the rationale for insurer requests.
- Improves understanding of the need to transition to more sustainable business practices, creating new insurance opportunities for the insurer.

Capacity building often occurred organically in the normal course of business through bilateral discussions. External research may be utilised to support the insurer’s engagement, for example,

²⁴ For example, the Global Association of Risk Professionals Sustainability & Climate Risk Certificate

sharing specific customer level insights from third-parties on transition risks and temperature alignment. Several insurers shared that in addition to the environmental risk scores provided by external data providers, they also refer to their customers and investee companies' own published sustainability reports, which often provide more insight on risk mitigation actions and transition plans, to inform their underwriting and investment decisions.

Insurers may also take a more structured, active approach to customer upskilling. They may organise outreach events or roundtables, hold webinars, or participate in forums with businesses active in the green sector. These may be organised with partner organisations, such as academic institutions, think tanks and non-governmental organisations, both to increase credibility and draw on the experience of subject matter experts. These interactions may allow insurers to not only advocate for more sustainable business practices, but also provide them with opportunities to connect with new customers in value-adding ways.

Case study: Organising events to educate stakeholders on environmental risk management

The insurer frequently organises events to raise awareness around pertinent environmental issues. Different formats are used for different types of engagement with external stakeholders, including conferences, webinars, forums as well as customer training programmes. Areas of discussion included:

- Investing in nature protection and restoration
- The effects of climate change on life and health
- The COP26 insurance agenda
- Carbon removal and nature-based solutions
- Environmental risk and the insurance industry
- Discussion on the TNFD framework

In addition to providing insights on environmental risk to stakeholders, the events were intended to highlight the insurer's commitment and leadership on transitioning to a net-zero economy.

Insurers may find it useful to share their own internal training materials where relevant, when interacting bilaterally or with larger groups. Given that the risks presented by climate change are common societal challenges, and not business specific, insights may be shared without significant incremental resource dedication. In addition, such an approach may help foster a common understanding between the insurer and its stakeholders, which may help facilitate an orderly transition to a low-carbon economy.

Further work required to:

- Leverage insurers' unique position to raise awareness and understanding of environmental risks with their stakeholders, along with the opportunities that the transition to a more sustainable economy presents.

8 KEY CHALLENGES

As part of our engagement with industry, MAS sought feedback on the challenges that insurers faced in implementing the ENRM Guidelines.

Challenges could broadly be categorised into the following three broad categories: (i) data and methodology; (ii) skills shortage; and (iii) reliance on head office.

8.1 DATA AND METHODOLOGY

Development of environmental risk assessment methodologies was commonly highlighted as challenging due to the unique characteristics of such risks, exacerbated by data availability, accuracy, and comparability issues. In particular, insurers faced challenges from incomplete public disclosures, clients being unable or unwilling to provide the necessary data, lack of standardisation in data when provided, positivity bias in disclosed data, lack of data granularity²⁵, and costly external data. These challenges echo broader industry findings as set out in the NGFS Progress Report on Bridging Data Gaps²⁶.

To address these data challenges:

- **SGX has mandated disclosures by listed entities and MAS plans to mandate disclosures by FIs against internationally aligned disclosure standards.** Given the urgency of the threat from climate changes, a voluntary approach to climate-related disclosures, where FIs selectively report using different frameworks or standards of their choice, may not be sufficient to address stakeholders' needs.
- **Project Greenprint²⁷ is a collection of initiatives by MAS that aims to harness technology and data to enable the greening of the financial sector.** Project Greenprint is part of the Green Finance Action Plan. MAS will partner the industry to pilot four interoperable digital platforms to address the financial sector's sustainability data needs - (i) an ESG Disclosure Portal, (ii) an ESG Registry, (iii) a Data Orchestrator layer, and (iv) a Greenprint Marketplace.
- **To support listed entities to meet SGX's climate-related disclosure requirements, SGX is partnering MAS to launch a pilot ESG disclosure solution (ESGenome) as part of Project Greenprint.** ESGenome will ease sustainability reporting of listed entities by allowing them to upload ESG data and generate sustainability reports aligned with various ESG standards, including the 27 Core ESG Metrics recommended by SGX²⁸. Investors will also be able to access ESG data and related information reported by issuers in a structured format. While the initial focus of ESGenome will be SGX listed entities, there are plans to extend the platform to non-SGX listed entities in the longer term.

To meet the increased demands for data, insurers will need to consider developing additional systems capabilities. It is important to have agile data collection efforts that reflect an evolving

²⁵ For example, detailed customer information at an asset-specific level, including geospatial data required for physical risk scenario analysis.

²⁶ Network for Greening the Financial System (2021), "Progress report on bridging data gaps"

²⁷ MAS webpage on Green Fintech, available at: <https://www.mas.gov.sg/development/fintech/Green-FinTech>

²⁸ SGX proposed a list of 27 Core ESG Metrics, to guide issuers in providing, and investors in accessing, an aligned set of ESG data. These metrics include 7 environmental-related metrics covering GHG Emissions, Energy Consumption, Water Consumption and Waste Generation. Refer to SGX consultation on "Starting with a Common Set of Core ESG Metrics" issued on 26 August 2021, and the consultation response issued on 15 December 2021.

understanding of environmental risks. In particular, the specific data that needs to be collected, and the granularity at which that data is collected, is expected to change over time.

As interim solutions to methodological and data issues to address environmental risks:

- Insurers typically focused on larger customers for which more extensive data was available. More work will be required for the smaller companies. Nonetheless, some external ESG service providers offer ESG assessment services for small and medium-sized enterprises. In leveraging the expertise of external ESG data providers, insurers should exercise caution and discernment by examining the reliability or reasonableness of underlying assumptions made by third-party providers in deriving their assessment and data.
- In some cases, insurers looked to simplify assessment using proxies. For example, for selected public equities, one insurer was able to use another issuer with a similar risk profile as a proxy to derive an ESG rating using the available information they had on the issuer.

Going forward, understanding of transmission channels and methodologies to identify and quantify climate-related risks are expected to continue evolving. Insurers are encouraged to:

- **Iteratively enhance risk management practices, as methodologies continue to evolve and mature.** Insurers should look to ongoing industry and supervisory efforts to develop and share good environmental risk management practices, such as the upskilling efforts elaborated upon in the Capacity Building section, along with the efforts of international organisations and regulators, such as the GFIT, Singapore insurance associations' Sustainability in Insurance Committee (SIC), SIF, NGFS, Taskforce on Climate-related Financial Risk and UK CFRF. MAS' incorporation of thematic climate scenarios as part of the 2022 Industry-Wide Stress Test exercise will encourage the collaborative development of capabilities in climate risk assessment, and complement insurers' efforts in this area.
- **Leverage on industry initiatives to deepen knowledge and strengthen in-house capabilities.** GFIT launched a series of capacity building workshops and e-learning modules for FIs and corporates. These initiatives aimed to deepen knowledge and strengthen the capabilities of banks, insurers and asset managers in environmental risk management and environmental-related disclosures, including around implementing and embedding the ENRM Guidelines. The workshops are targeted at relevant staff across the three lines of defence: from customer-facing to risk stewards and audit, and are conducted by subject matter experts. Further, some insurers have proactively shared their experiences through the publication of white papers or as part of their climate-related financial disclosures, while others have participated and shared their knowledge and experience in international initiatives such as the NZIA.

Specific to environmental-related risks beyond climate, most insurers had yet to start work on this front. As with climate-related risks, development of methodologies may require specific knowledge not within the usual remit of insurers, which will take time to fully develop. However, it should be noted that while the methodologies and expertise needed to assess environmental risk will likely overlap with that of climate-related risks, this will not be the case in all circumstances and will require additional effort to develop.

Relevant Resources

- F4B Foundation, 'Consultation on Biodiversity Issues and Approaches', 2021
- F4B Foundation, 'Finance and Biodiversity - Overview of Initiatives for Financial Institutions', 2022
- Natural Capital Finance Alliance's tool to assess impacts and dependencies on nature – Exploring Natural Capital Opportunities, Risks and Exposure (ENCORE)

- NGFS-INSPIRE reports
 - ‘Biodiversity and financial stability: exploring the case for action’, 2021
 - ‘Biodiversity and financial stability: building the case for action’, 2021
 - ‘Central banking and supervision in the biosphere: An agenda for action on biodiversity loss, financial risk and system stability’, 2022
- Studies by De Nederlandsche Bank and Banque de France on FIs’ exposure to biodiversity
 - Svartzman, R., Espagne, E., Gauthey, J., Hadji-Lazaro, P., Salin, M., et al. (2021). A ‘Silent Spring’ for the financial system? Exploring biodiversity-related financial risks in France. Banque de France Working Paper no. 826
 - Van Toor, J., Piljic, D., Schellekens, G., van Oorschot, M., and Kok, M. (2020). Indebted to nature. Exploring biodiversity risks for the Dutch financial sector. Amsterdam: De Nederlandsche Bank; Planbureau voor de Leefomgeving.
- The University of Cambridge Institute for Sustainability Leadership’s report on ‘Integrating Nature: The case for action on nature-related financial risks’, 2022

8.2 SKILLS SHORTAGE

Insurers cited increasing demand for staff skilled in sustainable insurance and finance, both within the frontline and risk, as a challenge. As traction around environmental risk has only picked up in the past few years, there is a talent and knowledge gap due to demand-supply mismatch. Makeshift sustainable financial hires without strong and deep ESG expertise and credentials could lead to ‘talent greenwashing’, potentially resulting in significant repercussions for the industry²⁹.

MAS’ efforts to facilitate a strong talent pipeline

Sustainable finance requires interdisciplinary skills. Beyond pure finance expertise, green finance roles require specialised skills such as climate change policy development and sustainability risk management.

MAS and the IBF have set out 12 Sustainable Finance TSCs under the IBF’s Skills Framework for Financial Services. The TSCs cover a range of functional knowledge (e.g. sustainability risk management, sustainability reporting, sustainable investment management) and thematic (e.g. climate change policy developments, natural capital, green taxonomies) topics. The new TSCs set out a robust, common level of sustainable finance proficiency, knowledge and abilities needed for individuals to perform various roles in sustainable finance. The TSCs will also serve as a reference for training providers and financial institutions to design and calibrate training programmes, and for employers to refer to when hiring new recruits.

To further support the build-up of sustainable finance capabilities out of Singapore, MAS has anchored green finance centres of excellence (COEs) to spearhead research and training, tailored for Asia. The COEs include:

- a) The Singapore Green Finance Centre (SGFC), launched in October 2020 as a collaboration between the Singapore Management University and Imperial College Business School, which will support applied research focusing on catalysing green finance solutions by the industry. SGFC will also provide training programmes across a range of levels of expertise on sustainable finance. The centre recently held its inaugural SGFC Climate Academy in

²⁹ Muruganathan, K. (2021), “Talent greenwashing risk in finance sector”, The Business Times Singapore, 14 September 2021

March 2022, focusing on topics such as climate scenarios and potential impact, implications of climate change on macro factors, data and portfolio risks, and climate risk assessment at the firm level. The programme was attended by finance professionals in key decision making and management roles across SGFC's founding partners³⁰.

- b) The Sustainable and Green Finance Institute (SGFIN), established by the National University of Singapore (NUS) in September 2021, will collaborate with other faculties within NUS to produce multi-disciplinary research and training targeted at shaping sustainability outcomes and policymaking across the corporate and financial sectors. SGFIN will take in the inaugural batch of students for its Masters programme in Sustainable and Green Finance in August 2022, the first of its kind among leading Asian universities.
- c) The Sustainable Finance Institute Asia (SFIA), an independent research and capacity building institute that has established its headquarters in Singapore. SFIA aims to catalyse and support the implementation of sustainable policy ideas in Asia, beginning with ASEAN, through advocacy and engagement activities. SFIA is also partnering the investment community to develop an AI-driven ESG information tool to harness qualitative data at scale to support investment decision-making, particularly into Asian assets. It is in discussions with several financial institutions on a proof of concept.

MAS is committed to working with industry stakeholders, including FIs, COEs and training providers, to groom a steady pipeline of local sustainable finance talents across all levels of expertise.

8.3 RELIANCE ON HEAD OFFICE

Some insurers cited the divergence between the effective date of MAS' ENRM Guidelines and that of their home jurisdiction as a challenge, due to their reliance on Head Office initiatives.

Singapore entities should work with their head offices to meet the expectations of the ENRM Guidelines and set concrete action plans and timelines to uplift their practices as soon as practicable. As clarified in the 'Response to Feedback Received for Proposed Guidelines on Environmental Risk Management for Insurers', for insurers with limited resources and capacity, MAS does not expect such firms to ramp up their environmental risk management capabilities to full capacity immediately. Instead, smaller firms can take measured steps to uplift their environmental risk management capabilities. After performing a gap analysis, insurers should engage their MAS Review Officer if there are challenges in meeting the implementation timelines.

³⁰ SGFC's founding partners are Bank of China Limited, BNP Paribas, Fullerton Fund Management, Goldman Sachs, HSBC, Schroders, Standard Chartered Bank, Sumitomo Mitsui Banking Corporation, and UBS AG.

9 ABBREVIATIONS

BSM	Board and Senior Management
CDSB	Climate Disclosure Standards Board
CFRF	Climate Financial Risk Forum
COE	Centre of Excellence
ENRM Guidelines	Guidelines on Environmental Risk Management for Insurers
ESG	Environmental, Social and Governance
F4B	Finance for Biodiversity
FI	Financial Institution
G20	Group of Twenty
GFANZ	Glasgow Financial Alliance for Net Zero
GFIT	Green Finance Industry Taskforce
GHG	Greenhouse Gas
IBF	Institute for Banking and Finance
IFRS	International Financial Reporting Standards
ISSB	International Sustainability Standards Board
KPI	Key Performance Indicator
MAS	Monetary Authority of Singapore
NGFS	Network of Central Banks and Supervisors for Greening the Financial System
NUS	National University of Singapore
NZAOA	Net Zero Asset Owner Alliance
NZIA	Net Zero Insurance Alliance
PCAF	Partnership for Carbon Accounting Financials
PSI	Principles for Sustainable Insurance
SASB	Sustainability Accounting Standards Board
SFIA	Sustainable Finance Institute Asia
SGFIN	Sustainable and Green Finance Institute
SGX	Singapore Exchange
SIF	Sustainable Insurance Forum
TCFD	Task Force on Climate-related Financial Disclosures
TNFD	Taskforce on Nature-related Financial Disclosures
TSC	Technical Skills and Competency
UNEP FI	United Nations Environment Programme Finance Initiative
UN PRI	United Nations Principles for Responsible Investing