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The Asia Securities Industry & Financial Markets Association (ASIFMA)

Prudential Treatment of Climate-related Risks and Stress Testing in Asia Pacific

February 2022

Field Work Phases

1. Supervisory Practice Stock Take

Compile a comprehensive **list of supervisory guidelines and requirements** relevant to the Asia Pacific Region (APAC).

This includes supervisory requirements that are **currently issued** or are **in the process of being developed**

2. Gap Analysis of Supervisory Requirements

Perform a comparison of respective APAC requirements against **the 6 BCBS Principles relating to supervisor expectations**.

From this comparison we will provide an overview of:

- *Geographic analytics* related to alignment of local guidelines to BCBS principals
- *Geographic maturity* in management and supervision of climate-related financial risks
- *Key themes in APAC* management and supervision of climate-related financial risks

3. Scenario Analysis & Stress Testing

Identify existing stress testing scheduling and scenario analysis guidelines across APAC countries

Where appropriate, advise on:

- Industry advocacy for NGFS reference scenarios
- Application of climate stress testing in a prudential regulatory context

KEY THEMES

Stock Take

- Supervisors have published various forms of documents related to climate risks, ranging from guidelines (Australia Hong Kong, Singapore), green finance frameworks (South Korea, Thailand) and official speeches (China, India).
- The BCBS proposed framework for the management of climate-related financial risk is more detailed than any regional guidance.

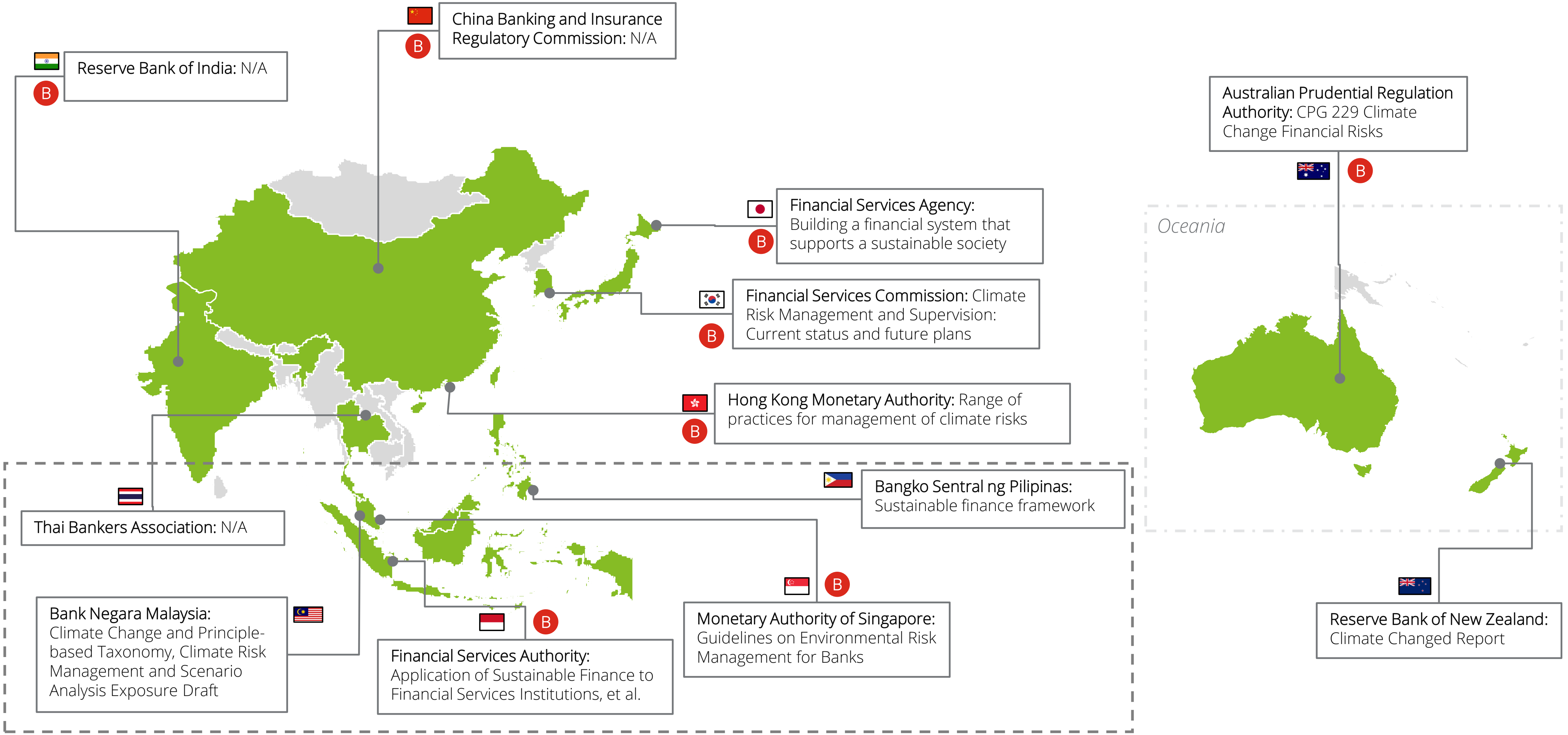
Gap Analysis

- Guidance provided by regional regulators on climate risk management aligns to the BCBS principles with varying levels of coverage.
- Regulators that have focused on frameworks for green financing may introduce requirements that extend the BCBS principles, for instance by influencing bank risk appetites or recommending that customers be incentivised for reducing emissions via differential pricing.
- Few regulators have published commitments to build the capability required to monitor compliance with climate risk management obligations.

Stress Testing

- Climate risk guidance introduces new requirements for banks to conduct scenario analysis, by changing the scenario designs and increasing the time-frames over which bank performance is to be forecast.
- Most regions will conduct 30-year climate stress tests in the next 12 months.
- Supervisory review of stress test outcomes will help banks and supervisors determine the data, systems and resources required to support an orderly transition to net zero carbon emissions.

SUPERVISORY LANDSCAPE



Contributed to ASEAN Central Banks in managing climate and environment-related risks, 2020

B Member of Bank of International Settlements (Basel Committee)

TIMELINE | REGULATORY GUIDELINES & STRESS TESTING SCHEDULE

Analysis based on speeches by senior regulators in 2021

POJK Technical Guidelines for the Implementation of Sustainable Finance for the Banking Sector

TBA Sustainable Banking Guidelines Responsible Lending

MAS Guidelines on Environmental Risk Management for Banks

Report on The Roles of ASEAN Central Banks

BSNP Sustainable Finance Framework

RBNZ Climate Changed 2021 and Beyond Report

BNM CBM Climate Change and Principal-based Taxonomy

Climate Risk Management and Scenario Analysis - Exposure Draft

FSA Basic Guidelines on Climate Transition Finance

FSC Green Finance Policy

HKMA Supervisory Policy Manual – Climate Risk Management

APRA Prudential Practice Guide – CPG 229 Climate Change Financial Risk

2017 | 2018 | 2019 | 2020 | 2021

Timeline of Regulatory Guideline

No stress testing schedule yet established

Late 2021 | Q1 2022 | Q2 2022 | Q3 2022 | Q4 2022 | Late 2023

2021 | **2022** | **2023**

Timeline of Stress Testing Schedule

CONVERGENCE BETWEEN SUPERVISORY STATEMENTS AND THE 6 BCBS SUPERVISORY PRINCIPLES (PART 1)

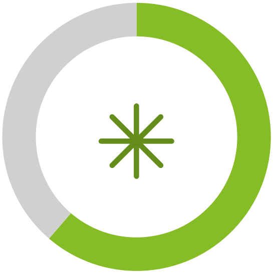
Principle	Australia	Canada	China	EU	Hong Kong	India	Indonesia	Japan
Principle 13: Supervisors should determine that banks' incorporation of material climate-related financial risks into their business strategies, corporate governance and internal control frameworks is sound and comprehensive.	Full convergence	Strong convergence	Minimal convergence	Full convergence	Strong convergence	Minimal convergence	Semi-convergence	Minimal convergence
Principle 14: Supervisors should determine that banks can adequately identify, monitor and manage all material climate-related financial risks as part of their assessments of banks' risk appetite and risk management frameworks.	Full convergence	Minimal convergence	Minimal convergence	Full convergence	Strong convergence	Minimal convergence	Minimal convergence	Minimal convergence
Principle 15: Supervisors should determine that banks comprehensively identify and assess the impact of climate-related risk drivers on their risk profile and ensure that material climate-related financial risks are adequately considered in their management of credit, market, liquidity, operational, and other types of risk. Supervisors should determine that, where appropriate, banks apply climate scenario analysis.	Minimal convergence	Minimal convergence	Minimal convergence	Strong convergence	Semi-convergence	Minimal convergence	No convergence	Minimal convergence
Principle 16: In conducting supervisory assessments of supervised banks' management of climate-related financial risks, supervisors should utilise an appropriate range of techniques and tools and adopt adequate follow-up measures in case of material misalignment with supervisory expectations.	Semi-convergence	No convergence	No convergence	Semi-convergence	Minimal convergence	No convergence	Minimal convergence	No convergence
Principle 17: Supervisors should ensure that they have adequate resources and capacity to effectively assess supervised banks' management of climate-related financial risks.	Minimal convergence	No convergence	Minimal convergence	Semi-convergence	Minimal convergence	Minimal convergence	No convergence	No convergence
Principle 18: Supervisors should consider using climate-related risk scenario analysis, including stress testing, to identify relevant risk factors, size portfolio exposures, identify data gaps and inform the adequacy of risk management approaches. Where appropriate, supervisors should consider disclosing the findings of these exercises.	Strong convergence	Minimal convergence	Minimal convergence	Strong convergence	Full convergence	No convergence	No convergence	No convergence

No convergence   Minimal convergence   Semi-convergence   Strong convergence   Full convergence

CONVERGENCE BETWEEN SUPERVISORY STATEMENTS AND THE 6 BCBS SUPERVISORY PRINCIPLES (PART 2)

Principle	Malaysia	NZ	Philippines	Singapore	S. Korea	Thailand	UK	US
Principle 13: Supervisors should determine that banks' incorporation of material climate-related financial risks into their business strategies, corporate governance and internal control frameworks is sound and comprehensive.	◕	◑	◔	◕	◕	◔	◕	◕
Principle 14: Supervisors should determine that banks can adequately identify, monitor and manage all material climate-related financial risks as part of their assessments of banks' risk appetite and risk management frameworks.	◑	◔	◔	◕	◔	◔	◕	◕
Principle 15: Supervisors should determine that banks comprehensively identify and assess the impact of climate-related risk drivers on their risk profile and ensure that material climate-related financial risks are adequately considered in their management of credit, market, liquidity, operational, and other types of risk. Supervisors should determine that, where appropriate, banks apply climate scenario analysis.	◑	◔	◔	◑	◑	○	◕	◕
Principle 16: In conducting supervisory assessments of supervised banks' management of climate-related financial risks, supervisors should utilise an appropriate range of techniques and tools and adopt adequate follow-up measures in case of material misalignment with supervisory expectations.	◔	◔	◔	◑	◔	○	◕	◔
Principle 17: Supervisors should ensure that they have adequate resources and capacity to effectively assess supervised banks' management of climate-related financial risks.	◔	◔	◔	◔	◔	◔	◕	◔
Principle 18: Supervisors should consider using climate-related risk scenario analysis, including stress testing, to identify relevant risk factors, size portfolio exposures, identify data gaps and inform the adequacy of risk management approaches. Where appropriate, supervisors should consider disclosing the findings of these exercises.	◕	◑	○	◔	◔	◔	◕	◔

○ No convergence ◔ Minimal convergence ◑ Semi-convergence ◕ Strong convergence ● Full convergence



Principle 13: Incorporating risks (banks)

58% of supervisory statements have either semi-, strong or full convergence with BCBS principles, particularly in ensuring consistent definition of climate related physical and transition risks as well as ensuring consistent definition of materiality. However, more extensive gaps were identified in assessment of effectiveness of board and senior management oversight.

Principle 14: Monitoring risks (banks)

67% of supervisory statements have not specified review of the extent to which banks regularly assess the materiality of climate-related financial risks. While the review of bank risk appetite statements and key risk indicators were mentioned more regularly, the inclusion of emerging climate risk concentrations in banks' internal reporting was rarely mentioned.

Principle 15: Assessing impacts (banks)

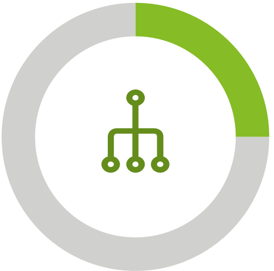
67% of supervisory statements do not yet oblige banks to comprehensively identify and assess the impact of climate-related drivers on their risk profile including credit, market, liquidity and operational risks. However, there are commitments and plans underway to establish frameworks for climate risk stress testing.

Principle 16: Assessing management (supv)

75% of supervisory statements do not schedule supervisory reviews or establish time-frames over which bank management of climate-related financial risk should be embedded. Nevertheless, there are developments via platforms such as ASEAN Central Banks for managing climate & environment-related risks.

Principle 17: Ensuring capacity (supv)

All 12 supervisory statements have either minimal or no reference to ensuring that they have adequate resources and capacity to effectively assess supervised banks' management of climate-related financial risks. This is the principle with the weakest evidence of convergence with BCBS principles, such as taking stock of existing skills and projected requirements.



Principle 18: Climate scenarios (supv)

75% of supervisory statements have not considered using climate-related risk scenario analysis, including stress testing. There are commitments and plans underway to establish frameworks for climate risk stress testing., as outlined in forums such as among ASEAN Central Banks and Network for Greening the Financial System (NGFS) Declaration for COP26

APPENDICES

APPENDIX I - THE BASEL COMMITTEE ON BANKING SUPERVISION (BCBS) 18 PRINCIPLES FOR THE EFFECTIVE MANAGEMENT AND SUPERVISION OF CLIMATE-RELATED FINANCIAL RISKS)

Principle 1: Banks should develop and implement a sound process for understanding and assessing the potential impact of climate-related risk drivers on their businesses and on the environments in which they operate.

Principle 2: The board and senior management should clearly assign climate-related responsibilities to members and committees and exercise effective oversight of climate-related financial risks.

Principle 3: Banks should adopt appropriate policies, procedures and controls to be implemented across the entire organisation to ensure effective management of climate-related financial risks.

Principle 4: Banks should incorporate climate-related financial risks into their internal control frameworks across the three lines of defence to ensure sound, comprehensive and effective identification, measurement and mitigation of material climate-related financial risks.

Principle 5: Banks should identify and quantify climate-related financial risks and incorporate those assessed as material over relevant time horizons into their internal capital and liquidity adequacy assessment processes.

Principle 6: Banks should identify, monitor and manage all climate-related financial risks that could materially impair their financial condition, including their capital resources and liquidity positions.

Principle 7: Risk data aggregation capabilities and internal risk reporting practices should account for climate-related financial risks. Banks should seek to ensure that their internal reporting systems are capable of monitoring material climate-related financial risks and producing timely information to ensure effective board and senior management decision-making.

Principle 8: Banks should understand the impact of climate-related risk drivers on their credit risk profiles and ensure credit risk management systems and processes consider material climate-related financial risks.

Principle 9: Banks should understand the impact of climate-related risk drivers on their market risk positions and ensure that market risk management systems and processes consider material climate-related financial risks.

Principle 10: Banks should understand the impact of climate-related risk drivers on their liquidity risk profiles and ensure that liquidity risk management systems and processes consider material climate-related financial risks.

Principle 11: Banks should understand the impact of climate-related risk drivers on their operational risk and ensure that risk management systems and processes consider material climate-related risks.

Principle 12: Where appropriate, banks should make use of scenario analysis, including stress testing, to assess the resilience of their business models and strategies to a range of plausible climate-related pathways and determine the impact of climate-related risk drivers on their overall risk profile.

Principle 13: Supervisors should determine that banks' incorporation of material climate-related financial risks into their business strategies, corporate governance and internal control frameworks is sound and comprehensive.

Principle 14: Supervisors should determine that banks can adequately identify, monitor and manage all material climate-related financial risks as part of their assessments of banks' risk appetite and risk management frameworks.

Principle 15: Supervisors should determine that banks comprehensively identify and assess the impact of climate-related risk drivers on their risk profile and ensure that material climate-related financial risks are adequately considered in their management of credit, market, liquidity, operational, and other types of risk. Supervisors should determine that, where appropriate, banks apply climate scenario analysis.

Principle 16: In conducting supervisory assessments of supervised banks' management of climate-related financial risks, supervisors should utilise an appropriate range of techniques and tools and adopt adequate follow-up measures in case of material misalignment with supervisory expectations.

Principle 17: Supervisors should ensure that they have adequate resources and capacity to effectively assess supervised banks' management of climate-related financial risks.

Principle 18: Supervisors should consider using climate-related risk scenario analysis, including stress testing, to identify relevant risk factors, size portfolio exposures, identify data gaps and inform the adequacy of risk management approaches. Where appropriate, supervisors should consider disclosing the findings of these exercises.

APPENDIX II - PRINCIPLES /OBLIGATIONS IN DETAIL

Principle 13: Supervisors should determine that banks' incorporation of material climate-related financial risks into their business strategies, corporate governance and internal control frameworks is sound and comprehensive. [Reference principles: BCP 9, BCP 14, BCP 26, SRP 20]
46. Supervisors should determine that roles and responsibilities for climate-related financial risks, including for the board and senior management, are clearly assigned, adequate and properly documented in relevant policies, procedures and controls.
47. Supervisors should assess the effectiveness of board and senior management oversight of climate-related financial risks and should verify that board and senior management receive accurate and appropriate internal reporting on material climate-related financial risks in order to conduct this oversight.
48. Supervisors should maintain sufficiently frequent contact, as appropriate, with board and senior management to develop an understanding of, and assess the bank's long-term approach to, addressing climate-related financial risks in a forward-looking manner. Where necessary, supervisors should challenge the bank on the assumptions made in setting strategies and business models.
49. Supervisors should determine that banks consider the potential impacts of climate-related risk drivers when developing and implementing their business strategies, including addressing the resiliency of their business models to any material climate-related financial risks over various time horizons and considering how these risks may impact their ability to achieve their business objectives.
50. Supervisors should determine that banks adequately incorporate climate-related financial risks into their corporate governance and internal controls, including adopting appropriate policies, procedures and controls across the three lines of defence, equipping relevant functions with adequate resources and expertise for implementing business strategy and risk management frameworks, and performing regular reviews of the overall internal control framework and system.

Principle 14: Supervisors should determine that banks can adequately identify, monitor and manage all material climate-related financial risks as part of their assessments of banks' risk appetite and risk management frameworks. [Reference principles: BCP 15, SRP 20, SRP 30]
51. Supervisors should review the extent to which banks regularly assess the materiality of climate-related financial risks, supported by appropriate key risk indicators and, where applicable, risk mitigating measures to effectively manage these risks.
52. Supervisors should assess the extent to which material climate-related financial risks are included in banks' risk management frameworks and risk appetite along with appropriate processes and procedures to identify, monitor and manage such risks. This may include ensuring that banks' risk management frameworks take into account all material climate-related financial risks to which they are exposed and assessing whether banks' data aggregation capabilities and internal reporting practices can facilitate identification and reporting of climate-related risk exposures, concentrations and emerging risks as well as banks' ability to deploy a range of risk management approaches.

Principle 15: Supervisors should determine that banks comprehensively identify and assess the impact of climate-related risk drivers on their risk profile and ensure that material climate-related financial risks are adequately considered in their management of credit, market, liquidity, operational, and other types of risk. Supervisors should determine that, where appropriate, banks apply climate scenario analysis. [Reference principles: BCP 17–25, Principles for sound liquidity risk management and supervision, Principles for the sound management of operational risk, Principles for operational resilience]
53. Supervisors should ensure that banks consider a range of mitigation options to manage and control material climate-related risks. Supervisors should also determine that banks consider climate-related financial risks assessed as material over relevant horizons within their ICAAPs and ILAAPs.
54. Where appropriate, supervisors should determine that banks have in place a scenario analysis programme, including stress testing, that is proportionate to their size, business model and complexity, in order to assess the resilience of their business models and strategies to a range of plausible climate-related outcomes. As part of the assessment, supervisors should review and, where necessary, challenge model assumptions, methodologies and results.

Principle 16: In conducting supervisory assessments of supervised banks' management of climate-related financial risks, supervisors should utilise an appropriate range of techniques and tools and adopt adequate follow-up measures in case of material misalignment with supervisory expectations. [Reference principles: BCP 8, BCP 9, SRP 10, SRP 20]
55. Supervisors should set expectations in a manner proportionate to the nature, scale and complexity of relevant banks' activities.
56. To foster cross-border collaboration, home and host supervisors of cross-border banking groups should share information related to climate risk resilience of banks and banking groups, leveraging existing frameworks for sharing information and undertaking collaborative work.

Principle 17: Supervisors should ensure that they have adequate resources and capacity to effectively assess supervised banks' management of climate-related financial risks. [Reference principles: BCP 9]
57. Supervisors should take regular stock of existing skills and projected requirements, taking into account relevant evolving market practices and supervisory practices in this landscape, and take timely measures to build adequate expertise in identified skill sets. Where aspects of climate-related risk assessments are outsourced, supervisors should maintain appropriate knowledge to ensure that the results of the outsourced analysis are credible and realistic.
58. Supervisors should engage a broad and diverse range of stakeholders to facilitate a collective understanding and measurement of climate-related financial risks and allow for optimisation of climate-dedicated resources.
59. Supervisors could use existing regulatory reports to assess the materiality of climate-related financial risks to banks. In case of data gaps, supervisors may collect additional information from supervised banks such as sector exposures and banks' internal reports.

Principle 18: Supervisors should consider using climate-related risk scenario analysis, including stress testing, to identify relevant risk factors, size portfolio exposures, identify data gaps and inform the adequacy of risk management approaches. Where appropriate, supervisors should consider disclosing the findings of these exercises. [Reference principles: Stress testing principles]
60. Supervisors should clearly articulate their specific objectives for supervisory climate scenario analysis, including stress testing, which could include, for example: (i) exploring the impact of climate change and the transition to a low-carbon economy on supervised banks' strategies and the resiliency of their business models; (ii) identifying and assessing relevant climate-related risk drivers affecting individual banks or the banking system; (iii) facilitating information sharing and identifying common data and methodological gaps and limitations in climate-related risk management; and (iv) informing the adequacy of supervised banks' risk management frameworks, including their risk mitigation options.
61. In designing scenario analysis, supervisors should consider material climate-related financial risks, including physical and transition risks, that take into account the nature, scale and complexity of the banks within their jurisdiction. The scenarios used should incorporate a range of plausible climate pathways. Supervisors should consider a range of time horizons, from short- to long-term, depending on the objectives of the exercise. For instance, shorter time horizons may be useful to analyse the types of climate-related financial risks that could crystallise within traditional capital planning horizons and to assess their potential impact on regulatory capital, while longer horizons, which carry higher levels of uncertainty, may be useful to gauge exposure to structural changes in the economy or financial system or the distribution of risks.
62. Supervisors should build sufficient capacity and expertise to conduct climate scenario analysis. Supervisors are encouraged to collaborate with a broad and diverse set of stakeholders, including the climate science community, to develop scenarios that can inform comprehensive assessments of climate-related financial risks, and should keep abreast of emerging practices in scenario design and implementation.
63. As scenario analysis continues to evolve, supervisors should recognise the limitations of their analyses when communicating their results or using them in supervisory assessments. Ongoing dialogue among supervisors and between supervisors and banks will contribute to the development of deeper insights on banks' climate-related vulnerabilities and their strategies to mitigate climate-related financial risks.
64. Supervisors should take into account the level of uncertainty associated with scenarios when determining whether to disclose results. Supervisors may consider disclosing scenario analysis results at an appropriate level of aggregation and should include the appropriate level of detail on methodologies, assumptions, the level of uncertainty and key sensitivities when disclosing results.
65. To foster information-sharing, cross-border collaboration and efficient resource utilisation, home and host supervisors are encouraged to establish frameworks for communicating and coordinating scenario analysis with other relevant domestic and cross-jurisdictional authorities where appropriate.

Country	Central Bank has a sustainability mandate	Implementation of TCFD formally mandated	Member of East Asia Pacific Working Group on Banking Supervision	Member of Bank of International Settlements (Basel Committee)
Australia	✗	Supported	✓	✓
New Zealand	✓	✓	✓	✗
Indonesia	✓	✗	✓	✓
Singapore	✓	✓	✓	✓
Malaysia	✓	✓	✓	Observer
Thailand	✓	Supported	✓	✗
India	✗	Supported	✗	✓
Hong Kong	N/A	✓	✓	✓
China	✗	✗	✓	✓
Japan	N/A	✓	✓	✓
South Korea	✓	Supported	✓	✓
Philippines	✓	✗	✓	✗

Country	Guidelines reviewed	Speeches or other documents with intent to address
Australia	• Climate Vulnerability Assessment (APRA) • Risk Management – CPG 220 (APRA) • Final Prudential Practice Guide – CPG 229 (APRA)	
New Zealand		RBNZ Climate Changed 2021 and Beyond Report
Indonesia	Technical Guidelines for the Implementation of Sustainable Finance for the Banking Sector (OJK)	Report on the roles of ASEAN Central Banks in managing climate and environment-related risks
Singapore	• Guidelines on Environmental Risk Management (MAS) • Framework for Impact and Risk Assessment of Financial Institutions (MAS)	Report on the roles of ASEAN Central Banks in managing climate and environment-related risks
Malaysia	• Climate Change and Principle-based Taxonomy (CCPT) • Climate Risk Management and Scenario Analysis - Exposure Draft	Report on the roles of ASEAN Central Banks in managing climate and environment-related risks
Thailand	Sustainable Banking Guidelines – Responsible Lending (TBA)	Report on the roles of ASEAN Central Banks in managing climate and environment-related risks
India		Heed to Heal – Climate Change is the Emerging Financial Risk (RBI)
Hong Kong	• Climate Risk Management – Supervisory Policy Manual GS-1 (HKMA) • Risk-based Supervisory Approach – Supervisory Policy Manual SA-1 (HKMA)	
China		
Japan	• Basic Guidelines on Climate Transition Finance (FSA) • Comprehensive Guidelines for Supervision of Financial Instruments Business Operations (FSA)	
South Korea	• Climate Risk Management & Supervision (FSC) • Climate Risk Management Guide (FSC)	4th Green Finance Taskforce Meeting Reviews Progress: "The Financial Supervisory Service has introduced a guideline on the management of climate risks in the financial sector
Philippines	Sustainable Finance Framework (BSNP)	Report on the roles of ASEAN Central Banks in managing climate and environment-related risks

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Will is Deloitte's Asia Pacific climate change leader and is lead Partner for Deloitte Risk Advisory's Asia-Pacific Climate Change and Sustainability Practice.

For more than 20 years Will has led the delivery of dozens of climate risk, adaptation, resilience and carbon management projects across all infrastructure classes and has led the integration of sustainability, climate change and resilience considerations into a number of multi-billion dollar transport infrastructure projects, acting both client and delivery side.

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25 years global experience transforming risk and finance functions for regulatory change; compliance and control; process and cost efficiency; impactful reporting and disclosure; data and model architecture; and scenario planning and stress testing.

Ed worked in the UK before joining Deloitte, remediating NatWest's stress testing practices and establishing their climate modelling capability. He was a senior leader of Australia's Basel II community and was previously Head of Risk Reward at Westpac.

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KJ supports risk advisory services in sustainability, climate change, ESG and corporate social responsibility matters to government and ASX50 clients across a range of industries. KJ has completed a Sustainable Finance Course with the Cambridge Institute of Sustainability Leadership, as well as a Master of Environment & Sustainability, specialising in Corporate Sustainability Management. He has previously worked in a Federal Minister's office as an executive understudy and attended the 2018 International Conference of Sustainable Development which coincided with the 73rd United Nations General Assembly in New York.

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David is an analyst working in the Sustainability & Climate Change team under Risk Advisory. David has built experience across various areas across Deloitte's sustainability and climate change offerings, particularly with clients in the energy, telecommunications and mining sectors.

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