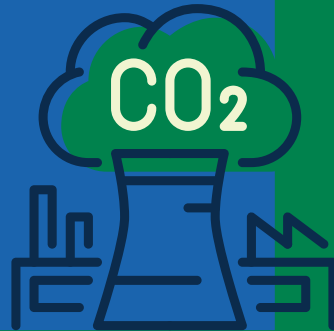
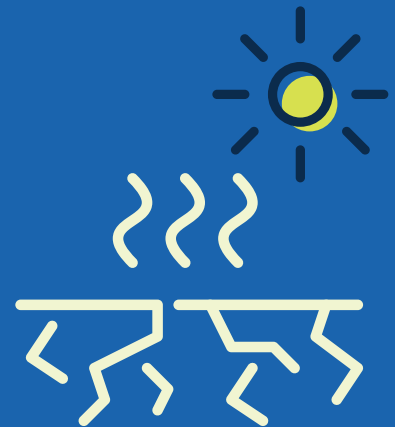




Sustainable  
Insurance Forum



Integration of  
**Climate-related Risks**  
in Insurance Regulatory  
Capital Frameworks



# Contents

About the Report	3
About SIF	3
Executive Summary	4
Background	6
Climate-related risks and regulatory capital	9
Challenges in addressing climate-related risks within regulatory capital frameworks	15
Taxonomy and/or other principles used by jurisdictions	18
Incorporation of specific climate-related risks	22
Conclusion	28
Annex I: CSWG II Survey Questionnaire	29

# About the Report

This is a United Nations Development Programme (UNDP) Sustainable Insurance Forum (SIF) report.

The **Integration of climate-related risks in insurance regulatory capital frameworks** report seeks to explore the extent to which climate-related risks are being considered in insurance regulatory capital frameworks. Furthermore, it delves into the challenges in this area, which may inspire future priority lines of action for SIF in 2025 and beyond. Overseen by SIF's Capital and Supervisory Frameworks Working Group (CSWG), chaired by Rachel Ong (from Monetary Authority of Singapore), and with input provided by UNDP SIF members, this paper has been developed by the SIF Secretariat, specifically Dipanjan Basu (Policy Researcher) and Florencia Baldi (SIF Strategic Manager), and edited by Ayesha Babar (Head of Strategic Coordination and Communications). The Secretariat is grateful to the experts involved and to all contributors from institutional partners, especially the CSWG members: Office of the Superintendent of Financial Institutions (OSFI) – Canada, Autorité de contrôle prudentiel et de résolution (ACPR) – France, International Association of Insurance Supervisors (IAIS), Monetary Authority of Singapore (MAS), South African Reserve Bank (SARB), and Swiss Financial Market Supervisory Authority (FINMA).

The report has been prepared by UNDP's SIF, but it does not represent the official views or position of the Group nor of any of its members. The findings, analysis, and recommendations of this brief do not represent the official position of the UNDP or of any of the UN Member States that are part of its Executive Board. They are also not necessarily endorsed by those mentioned in the acknowledgments or cited. The mention of specific organizations does not imply that they are endorsed or recommended by UNDP in preference to others of a similar nature that are not mentioned. The published material is being distributed without warranty of any kind, either expressed or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall UNDP be liable for damages arising from its use.

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## About SIF

Established by the UN with the support of the IAIS in December 2016, UNDP's SIF is a global network of 38 insurance supervisors and regulators, overseeing 92 percent of the global insurance market. This collaborative network aims to address sustainability and climate change issues impacting insurance companies and markets, and policyholders in their jurisdictions. The SIF Secretariat is hosted by the UNDP. The work of SIF is supported by the Irish Government.

For more information, please visit [www.sustainableinsuranceforum.org](http://www.sustainableinsuranceforum.org)

# Executive Summary

The **Integration of climate-related risks in insurance regulatory capital frameworks** report reflects the current practices of insurance regulators on the integration of climate-related risks in insurance regulatory capital frameworks. In 2024, the SIF Secretariat conducted a survey amongst the SIF members, as a follow-up to its work in 2022-23. The survey received responses from 31 SIF members (82 percent of its membership).

Participating SIF members shared their views and practices, including but not limited to:

1. **58% of respondents reported that climate-related risks have been incorporated within their regulatory capital framework** through different components, such as assets valuation, liabilities valuation and capital requirements. Among the **respondents that have not incorporated climate-related risks within their regulatory capital frameworks**, 30% of them plan to do so in the future.
2. Respondents had **different views on whether they deemed climate-related risks to be incorporated in their regulatory capital frameworks**. Two main groups of thought emerged; one group was of the view that existing asset and liability valuation methods already **inherently incorporate** all risks relevant to an insurer, including those related to climate, while the other group, despite using similar valuation approaches, took a more stringent view. They did not consider climate-related risks as being accounted for in their regulatory capital frameworks **unless they contained evidence-backed calibration**.
3. Most jurisdictions face challenges in accounting for climate-related risks in their capital frameworks. Some of the most **frequently reported challenges pertain to data-related issues** ranging from the lack of historical data on climate-related risks to the limited availability of high quality and granular sustainability-related data. Respondents also cited challenges relating to complexity in attributing defaults to climate risk (physical and transition risk) and quantifying financial losses, as well as capacity building and resource constraints. One respondent highlighted that climate-related financial risks are risk drivers that manifest in classic risk categories such as credit, market, insurance or operational risk, and there are challenges in isolating the effects of climate change using a statistically robust method.
4. **About 55%** of respondents use an **established definition for “green”, “brown”, “transition”, or “red” assets**. Some jurisdictions have developed or are developing their own taxonomies, while others refer to existing taxonomies or classification systems (e.g. EU taxonomy, Common Principles for Climate Mitigation Finance Tracking, etc.) as a guide. About 10% of respondents have set out **disclosure requirements on green asset ratio** (i.e. taxonomy-aligned assets as a percentage of total assets).
5. **58%** of respondents have reflected the impact of climate change in their capital requirements for **natural catastrophe underwriting risk**, while **less than 20%** have established such requirements for transition, litigation and other climate-related risks. For **climate-related transition risks, 84% of respondents have not included it in their capital framework** but this is under consideration for some, while for others this is not a current priority. One respondent explained that its domestic industry currently does not view legal and liability risks arising from climate change to be material.

6. **On additional climate-related risks** that could potentially be considered in regulatory capital frameworks, respondents identified the incremental risk that may arise from interaction between physical and transition risks, and the risk of greenwashing and inappropriately incentivizing behaviour to achieve short-term green credentials.
7. **42% of respondents have a structured process to account for emerging risks and/or changes to the materiality of climate-related risks** in their regulatory capital frameworks, with one challenge raised being having insufficient actuarial resources.

# Background

August 2024 ranked as the warmest August in 175 year-old records, marking the 15<sup>th</sup> consecutive month of record-high temperatures for the planet, with average global temperatures of 1.27 °C above pre-industrial levels.<sup>1</sup>

The world is witnessing more frequent extreme climate events including wildfire, storms and floods with increasing intensity and frequency. Low-income countries are disproportionately being affected<sup>2</sup> by the worst adverse impacts of climate change, despite them contributing the least to current climate change<sup>3</sup>. The United Nations Intergovernmental Panel on Climate Change (UN IPCC) has stated that almost half of the world's population (approximately 3.3-3.6 billion people) 'live in contexts that are highly vulnerable to climate change' and strongly advocated that greenhouse gas emissions must peak by 2025<sup>4</sup> for a chance to meet the 1.5°C target of the Paris Agreement<sup>5</sup>.

For the insurance sector, climate change poses physical, transition, as well as legal and reputational risks, with the potential to affect both sides of the balance sheet. With global aggregate premiums across life and non-life insurance close to US\$6.8 trillion<sup>6</sup> and over US\$36 trillion in global assets under management<sup>7</sup>, the failure to consider climate-related risks in their business strategies, investments, product pricing, underwriting and other aspects could have significant consequences for insurers. This has led insurance regulators and supervisors to consider developing or modifying existing regulatory capital frameworks to recognise and account for the climate-related risks faced by insurers.

The IAIS has been focusing on promoting a globally consistent supervisory response to climate change and providing supervisors with the necessary tools to monitor, assess and address climate-related risks to the insurance sector. In the recent past, together with SIF, IAIS has published several papers:

- May 2021: Application Paper on the Supervision of Climate-related Risks in the Insurance Sector<sup>8</sup>
- February 2020: Issues Paper on the Implementation of the Recommendations of the FSB Taskforce on Climate-related Financial Disclosures (TCFD)<sup>9</sup>
- July 2018: Issues Paper on Climate Change Risks to the Insurance Sector<sup>10</sup>

Recognising the relevance of the subject, SIF undertook a high-level survey with 31 supervisory authorities in 2022 (SIF Survey 2022) to understand whether insurance regulatory capital frameworks were capturing climate-related risks. It found that while the institutional mandates of supervisors generally did not explicitly mention climate risk as an axis for supervision, most

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1 <https://www.noaa.gov/news/earth-had-its-hottest-august-in-175-year-record> <https://www.noaa.gov/news/earth-had-its-hottest-august-in-175-year-record>

2 <https://www.weforum.org/agenda/2023/01/climate-crisis-poor-davos2023/>

3 <https://www.worldbank.org/en/news/feature/2015/11/08/rapid-climate-informed-development-needed-to-keep-climate-change-from-pushing-more-than-100-million-people-into-poverty-by-2030> The World Bank reports that only one-tenth of the world's greenhouse gases are emitted by 74 lowest income countries, but they will be most affected by the effects of climate change.

4 <https://www.ipcc.ch/report/sixth-assessment-report-cycle/>

5 <https://unfccc.int/process-and-meetings/the-paris-agreement>

6 <https://www.swissre.com/institute/research/sigma-research/sigma-2023-03.html>

7 <https://www.unepfi.org/industries/insurance/insuring-the-climate-transition/>

8 <https://www.iaisweb.org/uploads/2022/01/210525-Application-Paper-on-the-Supervision-of-Climate-related-Risks-in-the-Insurance-Sector.pdf>

9 <https://www.iaisweb.org/uploads/2022/01/200227-Issues-Paper-on-the-Implementation-of-the-TCFD-Recommendations.pdf>

10 <https://www.iaisweb.org/uploads/2022/01/180409-Issues-Paper-Climate-Change-Risks-Publ-Backgr-Session-SIF.pdf>

SIF respondents reported to be considering this risk in wider financial stability and policyholder protection objectives. Just about half of respondents to the SIF Survey 2022 were considering climate-related risks within their capital frameworks. Climate-related risks were either considered under standard quantitative requirements (i.e. Pillar 1), Own Risk and Solvency Assessments (ORSA) or capital add-ons. 35% of members reported considering climate-related risks within standard quantitative requirements (under Pillar 1), while 42% reported integrating these risks within their supervisory frameworks, primarily in governance requirements (Pillar 2). Since the SIF Survey 2022, members have made progress in the incorporation of climate-related risks in their regulatory capital frameworks. For example, the European Insurance and Occupational Pensions Authority (EIOPA) has made recommendations for additional capital requirements on fossil fuel assets.

Also, respondents to the SIF Survey 2022 agreed that the most important challenges hindering the integration of climate risk considerations within their supervisory and capital frameworks were:

- **Access to quality data** to develop prudential frameworks that adequately consider sustainability risks and supervise financial institutions accordingly. Currently available data is not yet sufficient to measure climate-related financial risks accurately, which translates into obstacles for calibrating differentiated capital treatment.
- **Lack of knowledge and expertise** both on the side of the insurers and the supervisors (e.g. constructing and implementing theoretical climate scenarios, understanding the science and the potential outcomes and the broader economic effects, among others).
- **Underdeveloped metrics and tools** (e.g. to develop estimates for losses with the necessary certainty when the impact is expected to be very material).

Building on this 2022 high-level stock-take, as agreed in SIF's working session in Seattle in June 2023, the **Capital and Supervisory Frameworks Working Group (CSWG)** was established to further lead discussions and work on climate-related risks within supervisory and regulatory capital frameworks in the insurance sector. The CSWG agreed on the need to develop greater insights into supervisors' approaches, rationale, and future efforts to integrate climate considerations within capital and supervisory frameworks.

A new SIF survey (hereafter referred to as 'CSWG II Survey, 2024') was conducted in mid 2024 with participation from 31 SIF members<sup>11</sup> to gain insights into the approaches and considerations in addressing climate-related risks (e.g. risks posed by the exposure of an insurer to physical, transition and/or liability risks caused by or related to climate change<sup>12</sup>) in regulatory capital requirements that are evidence-backed (i.e. suitably justified by supporting data).

In designing CSWG II Survey, 2024, we aimed to gather insights on how respondents incorporate climate-related risks into regulatory capital frameworks, whether explicitly or implicitly, and with evidence-based support. The results of the CSWG II Survey, 2024 form the basis of this paper. The report is divided into five sections. It sets out the main findings from the CSWG II Survey, 2024, outlining existing practices of insurance regulators in their jurisdictions.

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11 NAIC represents 8 members: California Department of Insurance, Connecticut Insurance Department, New York State Department of Financial Services, Department of Financial Regulation (Vermont), Illinois Department of Insurance, Maryland Insurance Administration, Massachusetts Division of Insurance and Washington State Office of the Insurance Commissioner. NAIC itself was excluded from calculations to avoid double counting.

12 As defined in the IAIS' "Application Paper on the Supervision of Climate-related Risks in the Insurance Sector" published in May 2021: <https://www.iais.org/uploads/2022/01/210525-Application-Paper-on-the-Supervision-of-Climate-related-Risks-in-the-Insurance-Sector.pdf>

## Section I

# Climate-related Risks and Regulatory Capital



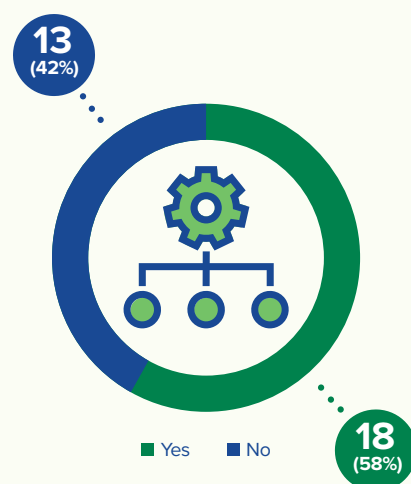
# Climate-related risks and regulatory capital

The CSWG II Survey, 2024 revealed that **58% of respondents (18 respondents) reported that climate-related risks are incorporated in their regulatory capital frameworks**, primarily by indirectly addressing climate-related risks through existing risk categories.

In our analysis of the survey results, we observed that respondents had different views on whether they deemed climate-related risks to be incorporated in their regulatory capital frameworks. Two main groups of thought emerged; the first group believes that climate-related risks are inherently accounted for in their asset and liability valuation approaches. They are of the view that existing accounting valuation and/or market-consistent valuation methods already incorporate all risks relevant to an insurer, including those related to climate, with some explicitly stating in their guidelines that insurers are to consider the impact of climate-related risks. Some respondents consider their current natural catastrophe risk requirements as adequate for capturing climate-related risks. The second group, despite using similar valuation approaches, may have taken a more stringent view and indicated that climate-related risks have not been considered at the moment. They do not consider climate-related risks as accounted for in their regulatory capital frameworks unless they contain evidence-backed calibration. For some, existing natural catastrophe models provide the evidence that additional capital needs to be set aside for specific perils. One respondent acknowledged that while its framework includes a natural catastrophe risk charge, this risk charge has not been updated to include impacts specifically from climate change.

For the purpose of this report, the respondents' actual responses have been reflected (i.e. their response of 'Yes' or 'No' in relation to incorporating climate-related risks in their regulatory capital frameworks, even if they use similar valuation approaches). However, it is important to highlight that respondents' underlying views on what it means to incorporate climate-related risks may differ.

Currently, does your jurisdiction explicitly and/or implicitly incorporate climate-related risks within your regulatory capital framework in a way that is evidence-backed?



**Figure 1: Number of respondents that have explicitly and/or implicitly incorporated climate-related risks within their regulatory capital frameworks [Source: CSWG II Survey, 2024]**

## Jurisdictions that have incorporated climate-related risks within their regulatory capital frameworks

**18 respondents stated that climate-related risks are incorporated within their regulatory capital frameworks** through different components, including assets valuation, liabilities valuation and/or capital requirements.

### Assets Valuation

Ten respondents stated that they require insurers to account for the impact of climate-related risks in assets valuation. For instance, one respondent's guidance note on climate-related risks<sup>13</sup> requires insurers to assess a potential decline in asset valuation and increased volatility of investments, as well as any impact to asset liability management and the impact that climate change can have on macro-economic assumptions pertaining to inflation, exchange and interest rates. The respondent also calls for adequacy of processes and systems to manage, monitor and assess the risk of potentially stranded assets.

Some respondents noted that their solvency frameworks (e.g. Solvency II, Swiss Solvency Test, etc.) rely on market valuation to reflect the impact of climate transition risks, where these materialize.

### Liabilities Valuation

Ten respondents stated that they require insurers to account for the impact of climate-related risks in liabilities valuation. One respondent mentioned that the actuarial function has the responsibility to incorporate climate-related risks, where relevant, into the valuation of liabilities. This included the need for the actuarial function to assess other secondary impacts of climate change such as those on the macroeconomy (e.g. inflation, expenses, frequency and type of pandemics). Another respondent observed from its inspections that in provisioning for climate-related losses, using only market valuation and liabilities valuation to account for climate-related risks may be insufficient. It expects insurers to use their historical data to evaluate the impact of natural catastrophes when computing technical provisions. Meanwhile, some respondents highlighted that liability valuation approaches may not require liabilities to be established for outcomes that are highly uncertain and not estimable.

Two respondents were of the view that the impact of climate-related risks have been implicitly incorporated into liabilities valuation as they require liabilities to be measured at market value, which would take into account future climate trajectories, especially for long-term liabilities. Another respondent has adopted a similar approach by requiring insurers to value their insurance obligations in a market-consistent manner, as the respondent was of the view that forward looking assessments with regard to climate risk would have been incorporated in the market valuation. The respondent also noted that actuarial data used for valuation needs to be based on robust methods that are as evidence-based as possible, and that currently, the available data does not allow for the identification of the explicit impact due to climate change.

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<sup>13</sup> <https://www.bma.bm/viewPDF/documents/2023-03-09-17-03-42-Guidance-Note--Insurance--Management-of-Climate-Change-Risks-for-Commercial-Insurers.pdf>

One respondent noted that Solvency II<sup>14</sup> requires insurers to consider climate change and sustainability as part of risk management, and also in reserving. Insurers are required to assess and manage the risk of loss or adverse change in the values of insurance and reinsurance liabilities, resulting from inadequate pricing and provisioning assumptions due to internal or external factors, including sustainability risks.

## Capital Requirement

Several respondents commented that climate-related risks are considered under a natural catastrophe risk requirement. In 2021, EIOPA published a methodological paper on the potential inclusion of climate change in the Natural Catastrophe risk module of the Solvency II standard formula. This paper identified the need to explicitly consider climate change in the calibration for specific perils/regions. The main conclusions from this paper clearly supported the formalisation of an approach to re-assess and, where material, recalibrate Natural Catastrophe Solvency Capital Requirement (SCR) parameters on a regular basis.

Solvency II mandates EIOPA to reassess, and, in case of significant discrepancies, recalibrate non-life natural catastrophe risk parameters at least every five years. EIOPA therefore performs regular recalibrations of these risks, taking the latest data and scientific evidence into account.

Following a public consultation that ended in June 2024, and drawing on new scientific insights, recent climate data and advanced risk modelling, EIOPA recently proposed adjusting standard formula risk factors for perils like flood, hail, earthquake and windstorm for certain regions, while also expanding the number of countries considered.<sup>15</sup> The exercise was performed in close collaboration with the National Competent Authorities (NCAs) and EIOPA's Technical Expert Network on Catastrophe Risk. Flood and hail are the perils where (re)assessment of the parameterisation has been proposed for the greatest number of countries.

As climate change alters the frequency and intensity of certain perils, EIOPA is also closely monitoring emerging perils (i.e. wildfire, coastal flood and droughts) for a potential inclusion in the standard formula.

EIOPA also published its final report, in November 2024, on the prudential treatment of sustainability risks within Solvency II<sup>16</sup> which recommends additional capital requirements for fossil fuel assets on European insurers' balance sheets to accurately reflect the high risks of these assets. The report's findings are based on a risk-based analysis of data and evidence. EIOPA carried out a combination of backward and forward-looking analysis of equity and spread risks, which demonstrated that fossil fuel-related stocks and bonds are more exposed to transition risks than assets connected to other economic activities. To ensure that European insurers set aside enough capital to withstand potential losses from investments in assets with high transition risks, EIOPA recommended additional capital charges for these assets, to better align capital requirements with insurers' actual risk exposures.

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14 <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32021R1256> – COM Delegated Regulation 2021/1256 amending the SII Delegated Regulation 2015/35 (in force since 2022). Article 269(1)(e) explicitly refers to the identification and assessment of sustainability risks as one of the tasks of the risk management function. Article 260(1)(a) requires sustainability risks to be included in underwriting and reserving activities; and Article 272(6)(b) requires the actuarial function to consider sustainability risks.

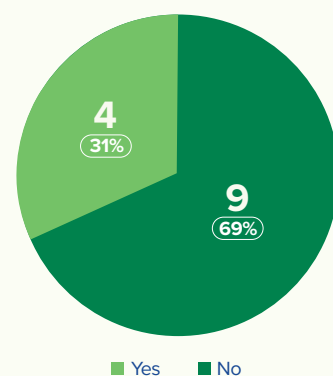
15 [https://www.eiopa.europa.eu/publications/opinion-20232024-reassessment-nat-cat-standard-formula\\_en](https://www.eiopa.europa.eu/publications/opinion-20232024-reassessment-nat-cat-standard-formula_en)

16 Final Report on the Prudential Treatment of Sustainability Risks for Insurers - EIOPA. [https://www.eiopa.europa.eu/publications/final-report-prudential-treatment-sustainability-risks-insurers\\_en](https://www.eiopa.europa.eu/publications/final-report-prudential-treatment-sustainability-risks-insurers_en)

One respondent to the CSWG II Survey, 2024 offered a nuanced perspective on the incorporation of climate-related risks in its capital framework. It views these risks as drivers that manifest within existing risk categories such as credit, market, insurance, and operational risks. Consequently, climate-related risks are implicitly considered in its capital framework, to the extent that reliable and robust methods are currently available. Similarly, one respondent noted that Solvency II relies on market valuations to reflect the impact of climate transition risks and uses this data for calibration purposes. As such, it was of the view that climate transition risks are considered in the capital requirements for market risks.

### Jurisdictions that have not incorporated climate-related risks within their regulatory capital frameworks (n=13)

Is your jurisdiction planning to incorporate climate-related risks within your regulatory capital framework in a way that is evidence-backed (i.e. suitably justified by supporting data)?



**Figure 2: Number of respondents that are planning to incorporate climate-related risks within their regulatory capital frameworks [Source: CSWG II Survey, 2024]**

### 13 respondents currently do not incorporate climate-related risks within their regulatory capital frameworks. Four of these respondents shared that they have plans to do so in a way that is evidence-backed.

One respondent shared that its capital framework is assessed on an ongoing basis to consider whether all risks current and/or future are adequately reflected in capital requirements methodologies where relevant and appropriate. Even though no specific timeframe has been set, the respondent acknowledges the need to update its regulatory capital framework to incorporate climate-related risks. The respondent has further highlighted that it is more effective to align to international best practices and standards as far as possible, but noted that work in this area is still developing.

Another respondent shared that climate-related risks are expected to be incorporated into its domestic risk based capital framework by year-end 2026 following the finalisation of the Insurance Capital Standard, while another respondent broadly stated that this is a medium to long term target.

## **Nine respondents currently have no plans to incorporate climate-related risks within their regulatory capital frameworks.**

Some respondents shared that they were monitoring global developments in this area, especially given the lack of available data. One respondent noted that the extent and way in which climate change impacts financial institutions may vary depending on factors including size and business type. Therefore, it is important to first understand how different financial institutions adopt different approaches to address climate change based on their individual characteristics before incorporating climate-related risks within regulatory capital frameworks.

One respondent said that it was focusing on governance and risk management aspects of climate-related risks rather than capital requirements.

Another respondent favoured incorporating incentivising factors over penalties for “brown” assets to maintain reporting transparency and avoid unintended consequences. While they do not plan to incorporate climate-related risks into capital requirements, they expect insurers to include climate-related risks in their own assessments and disclosures where materially relevant.

Meanwhile, one respondent emphasised the role of scenario analysis and stress testing to capture climate-related risks in capital frameworks. They believe that the existing time horizons used for risk calibration remain appropriate for climate-related risks and will continue to explore how climate risks can be calibrated within the time horizons used in existing capital frameworks.<sup>17</sup>

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<sup>17</sup> It had published a report in March 2023, on climate-related risk and the regulatory capital frameworks exploring conceptual issues to better understand the nature and materiality of ‘regime gaps’ in the capital framework. <https://www.bankofengland.co.uk/prudential-regulation/publication/2023/report-on-climate-related-risks-and-the-regulatory-capital-frameworks>

## Section II

# Challenges in addressing climate-related risks within regulatory capital frameworks



# Challenges in addressing climate-related risks within regulatory capital frameworks

Main challenges faced by jurisdictions in addressing climate-related risks within their capital frameworks



**Figure 3: Non-exclusive major challenges faced by jurisdictions in addressing climate-related risks within their capital frameworks [Source: CSWG II Survey, 2024]**

The CSWG II Survey, 2024 found that **jurisdictions faced multiple challenges in addressing climate-related risks** within their regulatory capital frameworks.<sup>18</sup>

- The most common challenges experienced are **data-related**, as mentioned by 12 respondents. Key issues include lack of historical data on climate-related risks, limited availability of high quality and granular sustainability-related data (such as transition risks drivers, counterparty-level emissions data, and asset level geolocation data for physical risks), and scarcity of country specific data for smaller countries. Furthermore, historical data on climate-related risks may have limited relevance for future risk assessments due to the rapidly changing nature of climate patterns. For one respondent, many of its insurers have indicated that they are able to collect and access a variety of data that could be useful for climate risk assessments. However, the time and resources needed to validate, check and prepare the data for the purposes of capital requirement calibrations and methodological development remains a challenge. The respondent is also still reviewing what data it should collect.
- 10 respondents cited challenges relating to **methodologies to attribute and quantify the financial losses arising from climate-related risks**. These include challenges in incorporating forward-looking information into risk requirement calibration and attributing defaults to climate-related physical and transition risks. Some of the views shared were:

<sup>18</sup> The challenge categories were non-exclusive (respondents could select multiple categories), so Figure 3 represents the relative frequency of each category.

- Climate-related risk calibrations require more forward-looking considerations which may not be captured in historical data. These forward-looking approaches are being developed internationally but in many cases they are still in their nascent stages. One respondent noted challenges in determining risk differentials between “green” and “non-green” assets, as well as “brown” and “non-brown” assets.
- Two respondents emphasised that capital frameworks should maintain their risk-based approach and be evidence-backed. One of them opined that climate-related financial risks are risk drivers that manifest in existing risk categories such as credit, market, insurance or operational risk, and are hence implicitly considered in its framework. It noted that available data does not solely reflect the impact of climate change and there are significant challenges in explicitly isolating climate-related risks using a statistically robust method. Movements in market prices, which form the basis for asset valuation and market risk modelling, are influenced by various events and information. There is no known method to disentangle these factors and attribute specific price movements to climate change. The respondent also pointed out that regulations can influence market prices, further complicating the isolation of climate change effects. As a result, its view was that directly observing the impact of climate change on financial markets is not currently feasible and it is more important to have a data- and evidence-based approach than to have an explicit capital treatment for climate risks. This perspective underscores the complexity of integrating climate-related risks into regulatory frameworks and highlights the need for advanced methodologies to address these challenges.
- Highlighted by four respondents, **capacity building and resource constraints** (time, human capital, financial) remain a challenge for both insurers and supervisors. These include the level of knowledge required to understand how the different climate scenarios are constructed, translate the different scenarios into scenarios that can be practically modelled, interpret the potential outcomes, and take appropriate action.
- The issue of **receptibility and support from stakeholders** was identified by four respondents as another challenge in addressing climate-related risks within capital requirements. A strong case must be presented to receive support from stakeholders for changes to the capital framework.
- Two jurisdictions cited the **absence of an internationally recognised and standardised approach to addressing climate-related risks** as a major challenge. Respondents highlighted that smaller jurisdictions depend on international collaboration and global standards when establishing their local capital frameworks.

## Section III

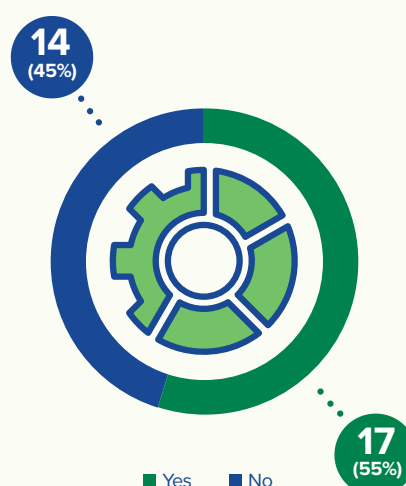
# Taxonomy and/or other principles used by jurisdictions



# Taxonomy and/or other principles used by jurisdictions

The CSWG II Survey, 2024 showed that **55% of respondents (17 respondents) use an established definition for “green”, “brown”, “transition”, or “red” assets**, while 45% (or the remaining 14 respondents) do not.

Does your jurisdiction specify or use an established definition for “green”, “brown”, “transition”, or “red” assets?



**Figure 4: Number of respondents that specify or use established definitions for “green”, “brown”, “transition”, or “red” assets [Source: CSWG II Survey, 2024]**

In total, 14 respondents shared that they do not specify or use any established definition for “green”, “brown”, “transition”, or “red” assets.

Five respondents highlighted that they follow the EU taxonomy as a guide on green classification systems. Other classification systems that were mentioned by respondents include Common Principles for Climate Mitigation Finance Tracking, Climate Bonds Taxonomy<sup>19</sup>, ICMA Green Bonds Principles<sup>20</sup> and the Climate Policy Relevant Sectors classification system.<sup>21</sup>

Some respondents have developed sustainable taxonomies in their jurisdictions. For instance, MAS launched the Singapore-Asia Taxonomy for Sustainable Finance<sup>22</sup> in December 2023, which sets out detailed thresholds and criteria for defining green and transition activities that contribute to climate change mitigation across eight focus sectors. The taxonomy is intended to have extensive coverage, encompassing sectors that make up 90% of the region’s greenhouse gas emissions.

One respondent stated that in its jurisdiction, a project is currently underway to set up a green

<sup>19</sup> <https://www.climatebonds.net/standard/taxonomy>

<sup>20</sup> <https://www.icmagroup.org/sustainable-finance/the-principles-guidelines-and-handbooks/green-bond-principles-gbp/>

<sup>21</sup> Battiston, et.al. (2017) <https://www.nature.com/articles/nclimate3255>

<sup>22</sup> <https://www.mas.gov.sg/news/media-releases/2023/mas-launches-worlds-first-multi-sector-transition-taxonomy>

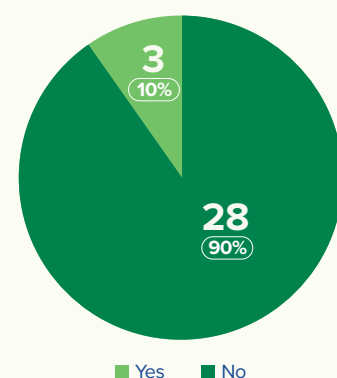
financial taxonomy led by its Ministry of Finance, with support from the World Bank and the respective Development Bank. Another respondent has developed a green finance taxonomy, which is based on the EU taxonomy, and undertook a comparison study between the two taxonomies. The respondent further shared that its taxonomy is currently voluntary and noted that industry uptake has been slow due to data limitations, lack of regulatory requirements, challenges with the *Do No Significant Harm* principle, and a broader focus on sustainability-linked products as opposed to green products.

Respondents have also pointed to the usefulness of taxonomies.

- Taxonomies provide a single point of reference for entities to **classify their investments and investment activities that meet sustainability criteria**, saving time and resources as companies draw upon an established classification instead of developing their own internal system, while preventing greenwashing.
- By applying the same principles and approaches to different investments, this allows for **comparability among entities**, and also provides the supervisor access to the same classification system used by regulated entities, enabling supervisors to further scrutinize the reporting provided by regulated entities. Thus, taxonomies can **increase the efficiency of the system** through increased consistency and establishing a common understanding.
- A transparent and risk-based classification scheme is important to **limit the added complexity of treating sustainability risks explicitly in capital requirements**, which often requires striking a balance between simplicity and risk sensitivity.
- Taxonomies are useful for identifying assets that meet sustainability criteria, enabling **companies to manage transition risks** effectively.

10% of respondents have set out disclosure **requirements on green asset ratios** (i.e. taxonomy-aligned assets as a percentage of total assets) in their respective jurisdictions.

Does your jurisdiction have a requirement on green asset ratio (i.e. taxonomy-aligned assets as a percentage of total assets)?



**Figure 5: Number of respondents that have a requirement on green asset ratios [Source: CSWG II Survey, 2024]**

For one jurisdiction, insurers are required to implement criteria and procedures for the selection of investments that take into account risks arising from exposures of assets and/or their issuers to environmental, social and governance risks. The insurer's investment policy should indicate the portion of its investment portfolio to which those criteria and procedures will be applied. Other respondents noted that the EU's Taxonomy Regulation requires companies to disclose their alignment with the taxonomy. This is in line with the Corporate Sustainability Reporting Directive (CSRD) reporting requirements, which came into force on a sequential basis from end 2023 onwards.

Most respondents currently have no intention to set up a green asset ratio. However, a few respondents highlighted that they are in the early stages of developing such considerations.

One respondent plans to undertake a project in 2025 to assess whether it should incorporate climate-related risks and "green" and "brown" asset considerations in its capital framework.

Another respondent shared that it will consider implementing a green asset ratio once a national green financial taxonomy has been established in its jurisdiction, and after quantitative studies and impact analyses have been carried out.

## Section IV

# Incorporation of specific climate-related risks



# Incorporation of specific climate-related risks

The CSWG II Survey, 2024 shows that the majority of respondents have reflected the impact of climate change in their capital requirements for natural catastrophe risks, with a select few accounting for risks such as transition risks, litigation risks and other climate-related risks.

Does your jurisdiction incorporate or plan to incorporate natural catastrophe risks / transition risks / litigation risks / other climate-related risks in your regulatory capital framework?

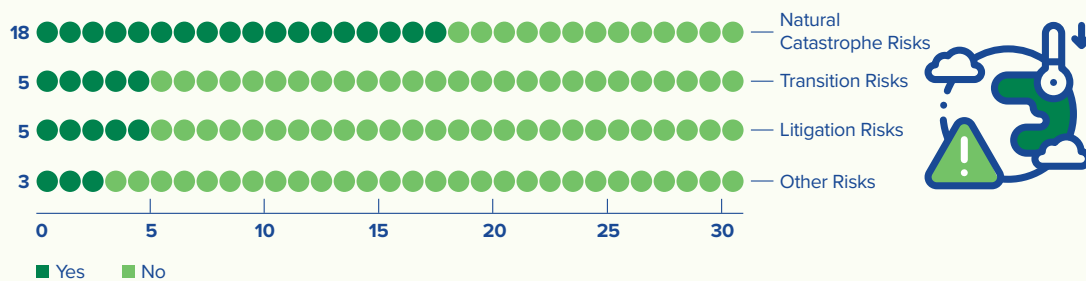
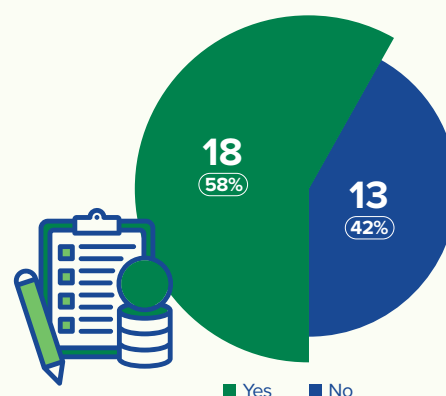


Figure 6: Number of respondents that incorporate (or plan to incorporate) specific climate-related risks into regulatory capital frameworks [Source: CSWG II Survey, 2024]

## Natural catastrophe underwriting risks

The CSWG II Survey, 2024 found that **close to 60% of respondents have reflected the expected impact of climate change in their capital requirements for natural catastrophe underwriting risk.**

Does your jurisdiction's capital requirement for natural catastrophe underwriting risk reflect the expected impact of climate change?



**Figure 7: Number of respondents that have reflected the impact of climate change in their capital requirement for natural catastrophe underwriting risk [Source: CSWG II Survey, 2024]**

One respondent has recently proposed adjusting standard formula risk factors for perils such as flood, hail, earthquake and windstorm in certain regions, whilst also expanding the number of countries considered. Climate change is incorporated to the extent it is captured in the data to date and the intention is to review the parameterization on a regular basis to capture climate change as it emerges.<sup>23</sup>

Another respondent said that natural catastrophe models have been a particular focus of its regulatory capital framework with great importance attached to ensuring that these models are based on the latest available data, to ensure that the overall risk-based capital requirements is based on robust, evidence-based methods. For adequate consideration of climate change, both for solvency calculations (usually calibrated based on a one-year horizon) and pricing of the national hazard insurance (which needs to include a medium-term forward view), multiple aspects must be taken into account. For example:

- Model calibration presents a critical decision point, whether to prioritise recent short-term observations or rely more heavily on long-term statistical data. This choice is not trivial and can significantly impact the model's outcomes. The appropriate approach often depends on the specific objectives of the modelling exercise.
- In frequency calibration, it is essential to consider both the temporal and spatial clustering of atmospheric events.
- For severity calibration, especially for the tail fitting, there is usually insufficient relevant statistical data. Accordingly, reliable expert judgement on climate effects plays an important role.

One respondent shared that it collects detailed information on natural catastrophes to understand the impact on natural catastrophe underwriting risk. It obtains information on the extent of climate change's impact on underwriting risk from insurers' ORSAs.

Other respondents elaborated on the reasons why their capital requirements for natural catastrophe underwriting risks do not reflect the expected impact of climate change.

<sup>23</sup> For further details on the Solvency II framework regular review, please refer to Section I

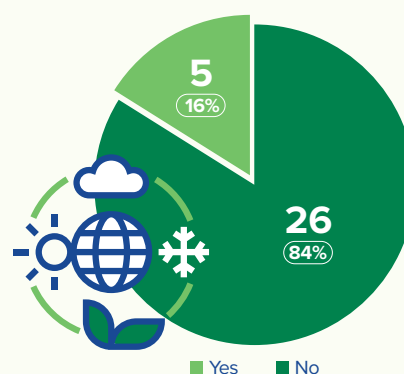
One respondent shared that its regulatory framework calibrates microprudential capital requirements over a one-year period (i.e., a one-year value-at-risk). While the amount of capital held for natural catastrophe risk has tended to increase over time, it is harder to dissociate the impact of exposure changes, cyclical variability and climate risk from the overall change. Similarly, another respondent noted that its natural catastrophe capital requirement only looks at potential events in the coming twelve months, and at this stage it does not anticipate climate change to impact the frequency and severity of natural catastrophes within that time horizon to materially impact capital requirements.

Another respondent stressed the importance of research and scenario analysis to accurately understand the impact of climate change-related risks on insurers.

## Climate-related transition risks

The CSWG II Survey, 2024 found that **16% of respondents' regulatory capital frameworks accounted for climate-related transition risks.**

Does your jurisdiction's regulatory capital framework account for the climate-related transition risks faced by insurers?



**Figure 8: Number of respondents that have accounted for climate-related transition risk in their regulatory capital frameworks [Source: CSWG II Survey, 2024]**

Five other jurisdictions are currently considering or planning to consider climate-related transition risks faced by insurers in their regulatory capital frameworks. One respondent contends that transition risk is a risk driver manifesting in existing risk categories, and as such, it is already implicitly considered via market-compliant valuation approaches. An explicit presentation is currently not planned, as there are significant challenges in explicitly isolating climate-related risks using a statistically robust method. According to another respondent, Solvency II's capital requirements do not explicitly address transition risks. Meanwhile, EIOPA has published its final Report on the prudential treatment of sustainability risks within Solvency II<sup>24</sup>, recommending additional capital requirements for fossil fuel assets on European insurers' balance sheets to accurately reflect the high risks of these assets. The report's findings are based on a risk-based analysis of data and evidence, and take into account the feedback received from stakeholders<sup>25</sup>. The report covers three distinct areas: the market risk of assets exposed to the climate transition, the impact of climate risk-related prevention measures on non-life underwriting risks and the treatment of social risks.

<sup>24</sup> [https://www.eiopa.europa.eu/publications/final-report-prudential-treatment-sustainability-risks-insurers\\_en](https://www.eiopa.europa.eu/publications/final-report-prudential-treatment-sustainability-risks-insurers_en)

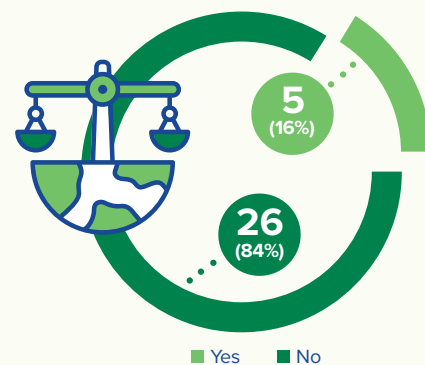
<sup>25</sup> [https://www.eiopa.europa.eu/consultations/discussion-paper-prudential-treatment-sustainability-risks\\_en](https://www.eiopa.europa.eu/consultations/discussion-paper-prudential-treatment-sustainability-risks_en)

One respondent was of the view that insurers have discretion over the asset investment choices and underwriting choices that they make. Another respondent has yet to account for climate-related transition risks in its regulatory capital framework, although it does consider capital requirements as an appropriate instrument to do so and supports the introduction of a supplementary capital charge for “brown” assets. The respondent cited other non-regulatory capital framework measures where such risks could be taken into account, such as the implementation of prudential transition plans for insurers as required by the Solvency II review. Those plans will be a supervision tool and are expected to cover the impact of climate change and transition to a low-carbon economy on insurers’ assets and liabilities with a double materiality approach.

## Climate-related litigation risks

The CSWG II Survey, 2024 shows that **16% of respondents incorporate or plan to incorporate the climate-related litigation risks faced by insurers in their regulatory capital frameworks.**

Does your jurisdiction incorporate or plan to incorporate climate-related litigation risks in your regulatory capital framework?



**Figure 9: Number of respondents that have incorporated or plan to incorporate climate-related litigation risks in their regulatory capital framework [Source: CSWG II Survey, 2024]**

Five jurisdictions responded that they have incorporated or plan to incorporate climate-related litigation risks in their regulatory capital frameworks. One respondent highlighted that legal risk is a risk driver that manifests in the classic risk categories. As such, it is already implicitly considered. Another respondent shared that its capital framework already addresses contingent liabilities and should also incorporate the impacts of climate-related litigation risks that may crystallize in the 12-month horizon.

Over 80% of respondents do not currently incorporate climate-related litigation risks in their regulatory capital frameworks. One respondent explained that the majority of its domestic industry does not currently consider legal/liability risk from climate change to be material, although it remains an area of focus for them.

Many respondents mentioned that it is challenging for litigation risk to be a calibrated risk requirement, and that this is being further studied. Nonetheless, insurers should account for such risks in their ORSAs and set out appropriate reserves if needed. One respondent highlighted that it is not a straightforward issue; while individual insurers need to take a view on specific cases that have a direct impact on them and make appropriate provisions, the extent to which more remote actions should be incorporated is open to debate.

## Other climate-related risks

Four respondents raised additional climate-related risks considerations that could potentially be incorporated in regulatory capital frameworks.

- One respondent noted that **incremental risk** may arise from the interaction between physical and transition risks<sup>26</sup> and also from the interaction between cyclical economic shocks and non-cyclical climate shocks.<sup>27</sup>
- Another respondent highlighted the **risk of greenwashing** and inappropriately incentivizing behaviour to achieve short term green credentials which may not be sustainable in the long term. For example, the proliferation of biofuel, which has incentivised the displacement of other crops, has led to unintended consequences.
- One respondent highlighted that there are other sustainability risks that interact with climate-related risks, such as biodiversity and nature-related losses, which could also translate into financial risks and thus could also be considered for inclusion into capital requirement frameworks in the future.
- Another respondent shared that there are other climate-related risks that are not currently known. Once these risks are identified, they should be considered to the extent that they have the potential to impact either the capital measure or the capital requirement.

## Structured process to adjust regulatory capital framework

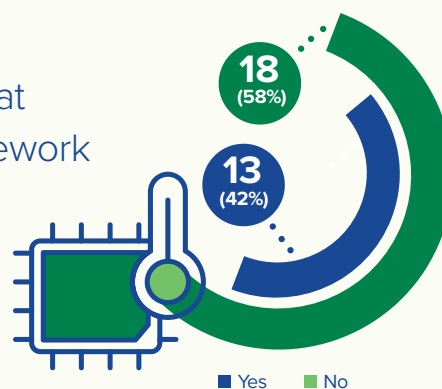
**42% of respondents have a structured process to update their regulatory capital frameworks** to reflect emerging risks and/or changes to the materiality of climate-related risks.

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26 While physical risk and transition risk are often treated independently, some experts say that total climate risk costs can be greater than the simple sum of the two risks. If this hypothesis is true that regulatory capital for climate risk may be underestimated and we would like to consider this potential underestimation issue.

27 There could be interaction between non-cyclical climate risk stress and conventional cyclical macro stress which is based more or less on historical stress events. If future cyclical macro stress events happen while climate risk materializes, the historical stress events might not be good indicator to future cyclical stress events which could be amplified by climate risk. If this hypothesis is true, it could imply that overall regulatory capital could be underestimated.

Is there a structured process in place that ensures that the regulatory capital framework is updated in case of changes to the materiality of climate-related risks and/or new risks emerging?



**Figure 10: Number of respondents that have a structured process that ensures that their regulatory capital framework is updated to account for emerging risks and/or changes to the materiality of climate-related risks [Source: CSWG II Survey, 2024]**

58% of respondents acknowledged that they do not have a structured process to ensure that their regulatory capital frameworks are updated in case of changes to the materiality of climate-related risks. Nevertheless, one respondent shared that it carries out periodic reviews of its framework, as circumstances require. Another respondent raised the challenge of not having sufficient actuarial resources.

One respondent will undertake further analysis to explore whether changes to the regulatory capital frameworks may be required. In particular, the respondent is working to:

- Ensure firms continue to make progress to address capability gaps;
- Build its capabilities and forward-looking tools to judge the resilience of the financial system to climate risks;
- Support initiatives to enhance climate disclosures;
- Promote high quality and consistent accounting for climate risks;
- Build understanding of and address material regime gaps in the capital frameworks;
- Supervise insurers' approaches to managing the financial risks from climate change; and
- Engage in relevant discussions at international fora to inform domestic policymaking.

Thirteen respondents shared their respective mechanisms and processes to ensure that their regulatory capital frameworks are updated to account for emerging risks and/or changes to the materiality of climate-related risks. Some respondents have put in place governance structures that consider current and emerging risks faced by individual insurers and the sector as a whole. Another respondent shared that it is undertaking a multi-year framework review which provides an opportunity to address changes in climate-related risks and will publicly consult on any proposed changes to the framework.

# Conclusion

The CSWG II Survey, 2024 examined current practices of insurance regulators in incorporating climate-related risks in their regulatory capital frameworks. The findings underscore the distinctive nature of these risks – climate-related risks are special drivers of risks that may manifest in other existing risk categories such as credit, market, insurance, or operational risk, and that while microprudential requirements are typically calibrated over a one-year time horizon, a longer time horizon and more forward-looking approach may need to be considered for climate-related risks. Meanwhile, the importance of evidence-based calibration cannot be overstated, regardless of whether climate-related risks are captured implicitly or explicitly within the capital framework. The following recommendations could be considered by insurance regulators:

- **Recommendation 1 - Exploring steps towards climate risk integration:** Where consistent with institutional mandates, insurance regulators that have yet to address climate-related risks in their regulatory capital frameworks can consider developing a roadmap to incorporate these risks. This could take into account current challenges such as data limitations, the evolving nature of international standards, capacity constraints, and the unique complexities faced by smaller jurisdictions.
- **Recommendation 2 - Enhancing risk assessment techniques:** Insurance regulators can consider supplementing their evaluation of climate-related risks with robust scenario analysis and stress testing. This approach would complement the development of regulatory capital frameworks that take in account climate-related risks over time.
- **Recommendation 3 - Fostering international collaboration:** Insurance regulators should continually monitor international developments and review climate-related research and analysis to support evidence-backed risk calibrations, and share best practices on the development of effective policy and regulatory frameworks at international fora (e.g. SIF, IAIS), so that member jurisdictions can learn from each other and make progress together.

# Annex I:

## CSWG II Survey Questionnaire

Following the 2022 SIF survey, we would like to understand jurisdictions' progress in embedding climate-related risks in their regulatory capital frameworks.

1. Have there been any changes in your jurisdiction's regulatory capital framework in relation to climate-related risks since the 2022 SIF survey? If so, please describe the main changes.

Yes

No

2. Do you see any challenges or issues faced by your jurisdiction in addressing climate-related risks within your capital framework? If so, can you describe the main challenges (if possible, please also indicate if these were mentioned in your response to the 2022 SIF survey)? Please elaborate on the identified challenges.

Yes

No

- 2.1. If your jurisdiction is planning to, in the midst of or has made capital framework changes in relation to the challenges identified in Q2, kindly provide details on the steps taken and explain why you regard these changes as necessary and effective.

3. Does your jurisdiction specify or use an established definition for "green", "brown", "transition", or "red" assets?

Yes

No

- 3.1. If **Yes**, please elaborate on the taxonomy and/or principles used (e.g. jurisdiction's own specific taxonomy, EU taxonomy, Climate Bonds Taxonomy<sup>28</sup>, ICMA Green Bond Principles<sup>29</sup>, among others) and if it is aligned to other taxonomies (please specify which ones).

- 3.1.1. Please also explain why you believe such a taxonomy and/or principles are useful and the rationale for your selected choice of taxonomy and/or principles.

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<sup>28</sup> <https://www.climatebonds.net/standard/taxonomy>

<sup>29</sup> <https://www.icmagroup.org/sustainable-finance/the-principles-guidelines-and-handbooks/green-bond-principles-gbp/>

3.1.2 Does your jurisdiction have a requirement on green asset ratio (i.e. taxonomy-aligned assets as a percentage of total assets)?

Yes

No

3.1.2.1 If **Yes**, please elaborate on the green asset ratio set and the rationale for setting one. Please also elaborate if the green asset ratio is tied to the level of green discount that may be accorded to insurers (if applicable).

3.1.2.2 If No, do you intend to set a green asset ratio? What is the planned timeframe for implementation?

3.2. If **No**, please provide details if your jurisdiction is currently designing or planning to adopt an existing taxonomy (please specify the taxonomies under consideration), including the expected completion timeframe. If there are no such plans, please provide the rationale for this decision.

3.3. Do you believe that the application of differing green taxonomies/principles by various jurisdictions can pose operational issues for multinational firms (i.e. few assets may consistently qualify as green across the variety of different taxonomies)?

Yes

No

4. Currently, does your jurisdiction explicitly and/or implicitly<sup>30</sup> incorporate climate-related risks within your regulatory capital framework in a way that is evidence-backed (i.e. suitably justified by supporting data)?

Yes

No

4.1. If **Yes**, in which of the components in Table 1 below has the regulatory capital framework in your jurisdiction incorporated climate-related risks:

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<sup>30</sup> Incorporated explicitly refers to having a standalone risk requirement category specifically for climate-related risks. Incorporated implicitly refers to integrating calibrated climate-related risk into existing risk requirement categories, rather than establishing it as a separate category. In both cases, the incorporation of climate-related risks should be supported by evidence.

**Table 1:**

Components	Yes/No (If Yes, please specify if climate risk has been incorporated explicitly or implicitly)	Please elaborate (This could be in the form of penalising factors for brown assets and/or incentivising factors for green assets, etc. Please specify the approach taken.)
a) Assets Valuation		<p>E.g. Requiring insurers to incorporate the impact of climate-related risks in assets valuation.</p> <p>Please elaborate on any guidance provided to insurers on how this is incorporated and valued.</p>
b) Liabilities Valuation		<p>E.g. Requiring insurers to incorporate the impact of climate-related risks in liabilities valuation.</p> <p>Please describe how this is being incorporated*, including references or sources of data, etc. used in setting the assumptions.</p> <p>*For example, integrating climate risk scenarios into the risk assessment process to evaluate the potential impact of climate-related events on insurance portfolios. This may also involve assessing changes in the likelihood and severity of natural catastrophe events due to climate change.</p>
c) Capital Requirement		<p>Please elaborate on the areas of capital requirement where climate-change related drivers are incorporated (e.g. insurance risk related capital requirement, assets risk related capital requirement, asset concentration risk requirement, etc.).</p> <p>Please describe the references or sources of data, etc. used to set the risk requirements. Please also elaborate on the criteria for assets (including risk management and governance requirements, if any) and risks included under the climate-related capital requirement computation, if applicable.</p>
d) Any other components		

4.2. If **No**, where your jurisdiction does not currently incorporate climate-related risks within your regulatory capital framework in a way that is evidence-backed (i.e. suitably justified by supporting data), then:

4.2.1. Is your jurisdiction planning to do so?

Yes

No

4.2.1.1 If **Yes**, what is the expected timeframe for this incorporation?

4.2.1.1.1 Please also provide details in Table 2 below on which aspects of your regulatory capital framework this will be incorporated (e.g. valuation of assets and/or liabilities, capital requirement), the methods being used, and the challenges faced.

**Table 2:**

Components	Yes/No (If Yes, please specify if climate risk will be incorporated explicitly or implicitly)	Please elaborate (This could be in the form of penalising factors for brown assets and/or incentivising factors for green assets, etc. Please specify the approach to be taken.)
a) Assets Valuation		<p>E.g. Requiring insurers to incorporate the impact of climate-related risks in assets valuation.</p> <p>Please elaborate on any guidance to be provided to insurers on how this is to be incorporated and valued.</p>
b) Liabilities Valuation		<p>E.g. Requiring insurers to incorporate the impact of climate-related risks in liabilities valuation.</p> <p>Please describe how this will be incorporated*, including references or sources of data, etc. to be used in setting the assumptions.</p> <p>*For example, integrating climate risk scenarios into the risk assessment process to evaluate the potential impact of climate-related events on insurance portfolios. This may also involve assessing changes in the likelihood and severity of natural catastrophe events due to climate change.</p>
c) Capital Requirement		<p>Please elaborate on the areas of capital requirement where climate change-related drivers will be incorporated (e.g. insurance risk related capital requirement, assets risk related capital requirement, asset concentration risk requirement, etc.).</p> <p>Please describe the references or sources of data, etc. to be used in setting the risk requirements. Please also elaborate on the criteria for assets (including risk management and governance requirements, if any) and risks to be included under the climate-related capital requirement computation, if applicable.</p>
d) Any other components		

4.2.1.2 If **No**, where your jurisdiction is not planning to incorporate climate-related risks in your regulatory capital framework:

4.2.1.2.1 Kindly provide details on the rationale (e.g. contributing factors or challenges) on why your jurisdiction is not planning to do so.

4.2.1.2.2 What factors are necessary before your jurisdiction could consider integrating climate-related risks into your regulatory capital framework?

5. Please provide additional details on whether the following are incorporated (explicitly and/or implicitly) or planned to be incorporated in your jurisdiction's regulatory capital framework:

5.1. Natural Catastrophe risks: The frequency and severity of natural catastrophes are expected to increase due to climate change. Does your jurisdiction's capital requirement for natural catastrophe underwriting risk reflect the expected impact of climate change?

Yes

No

5.1.1. If **Yes**, please elaborate.

5.1.2. If **No**, please explain why.

5.2. Transition risks: Apart from physical risks, insurers also face long-term transition risks (including potential losses from stranded assets). Does your jurisdiction's regulatory capital framework account for the climate-related transition risks faced by insurers?

Yes

No

5.2.1. If **Yes**, how are transition risks currently considered or planned to be considered in capital requirements?

5.2.2. If **No**, please explain why, including whether your jurisdiction considers that regulatory capital frameworks are the appropriate instrument to account for climate-related transition risks.

5.3. Legal risks: Climate-related litigation against corporations, including against insurers, is on the rise. Does your jurisdiction incorporate or plan to incorporate climate-related litigation risks in your regulatory capital framework?

Yes

No

5.3.1. If **Yes**, please provide details on how these risks are being or will be incorporated (for example, as a contingent liability when an insurer is facing legal action regarding past events).

5.3.2. If **No**, please explain why, including whether your jurisdiction considers that regulatory capital frameworks are the appropriate instrument to account for climate-related litigation risks.

5.4. Do you have a structured process in place that ensures that the regulatory capital framework is updated in case of changes to the materiality of climate-related risks and/or new risks emerging? If so, please describe this process.

Yes

No

5.5. Are there any additional climate-related risks (other than the physical, transition and litigation risks covered in Q5.1-5.3) that should be considered in regulatory capital frameworks? If so, please elaborate on these other risks and how they could be incorporated.

Yes

No





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