



International Actuarial Association
Association Actuarielle Internationale



Institute of Actuaries of India
Statutory body established under an Act of Parliament



**21st Global
Conference
of Actuaries**

17th - 19th February 2020 | Mumbai, India

Climate Change : Developments within the Insurance Sector

Richard Holloway

Milliman

18 February 2020

Agenda

- The role of IAIS and Insurance Regulators
 - Developments in UK
 - Developments in Singapore
- Initiatives by the actuarial profession
- The role for consultants



Sustainable Insurance Forum

- A leadership group of Insurance Supervisors and Regulators
 - part of United Nations Environment Programme; and
 - working closely with IAIS.
- Strive to strengthen understanding of and responses to sustainability issues facing the insurance sector.
- Ultimately looking to embed sustainability factors into insurance supervision and regulation.

26
jurisdictions
as members
as at
end November
2019

Climate-related Financial Disclosures

FSB (Financial Stability Board), and Task Force on Climate related Financial Disclosures (TCFD)

<https://www.fsb-tcfd.org/publications/>

- **SIF Survey** on TCFD Implementation; completed by members in **15** jurisdictions

- Data collected from **1,170** insurers

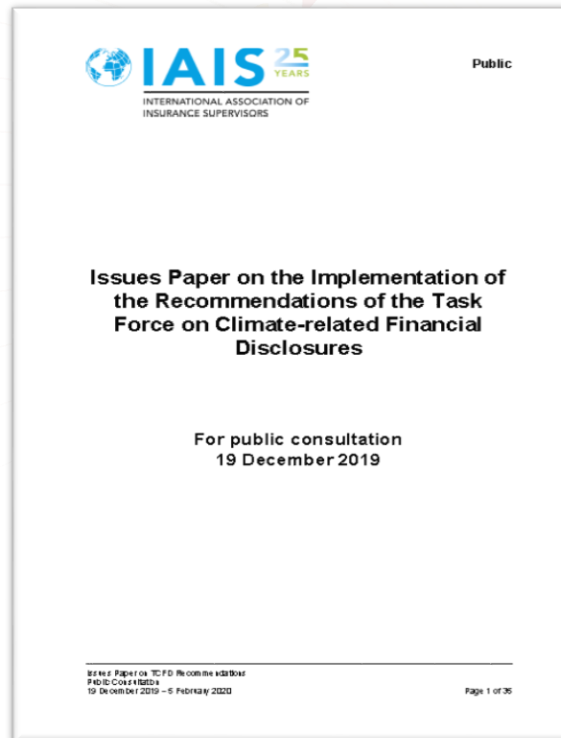
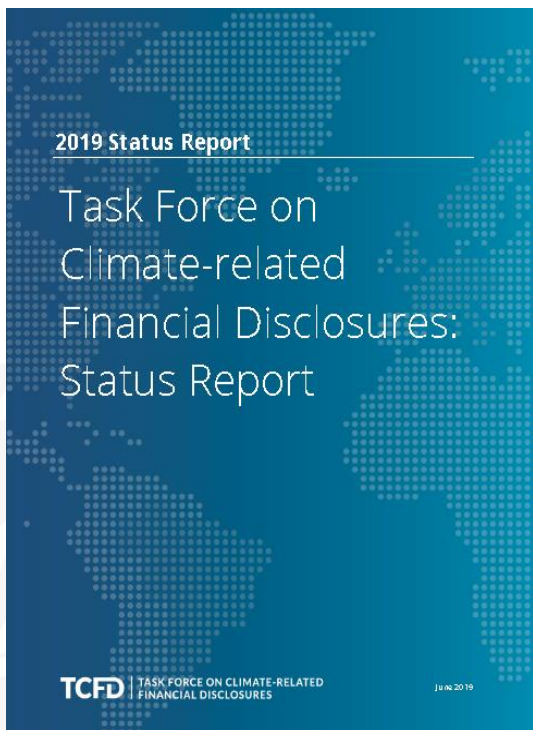
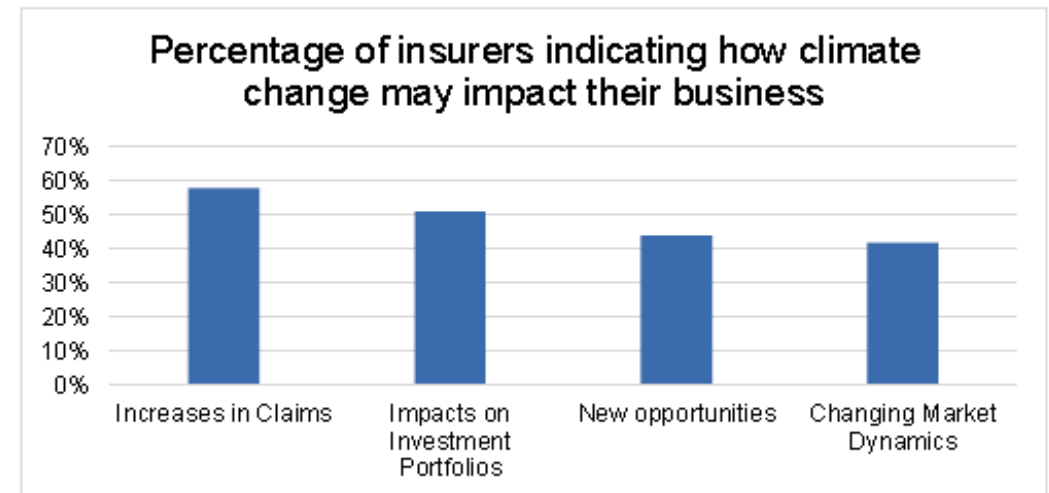


Figure 1: Expected impacts of climate change on insurers



Source: SIF Survey, 2019

Other issues identified from SIF survey

Operational issues

e.g. business continuity issues; claims management unpredictability

Strategic issues

Challenges to predict the future, and greater regulatory burden.

Business resilience issues

Impact on P&L, affordability of insurance, etc.

Conclude

- A wide range of views
- Disclosures likely to differ significantly (lack quality)

Focus in the future

- 1 Potential for increasing climate risk with an impact on the pricing for vulnerable customers
- 2 Impact of climate risks on long term model resilience
- 3 Interactions between micro- and macro-prudential objectives (e.g. impact on individual firms and the entire sector).

Risk Framework

Climate risks typically classified into three groups

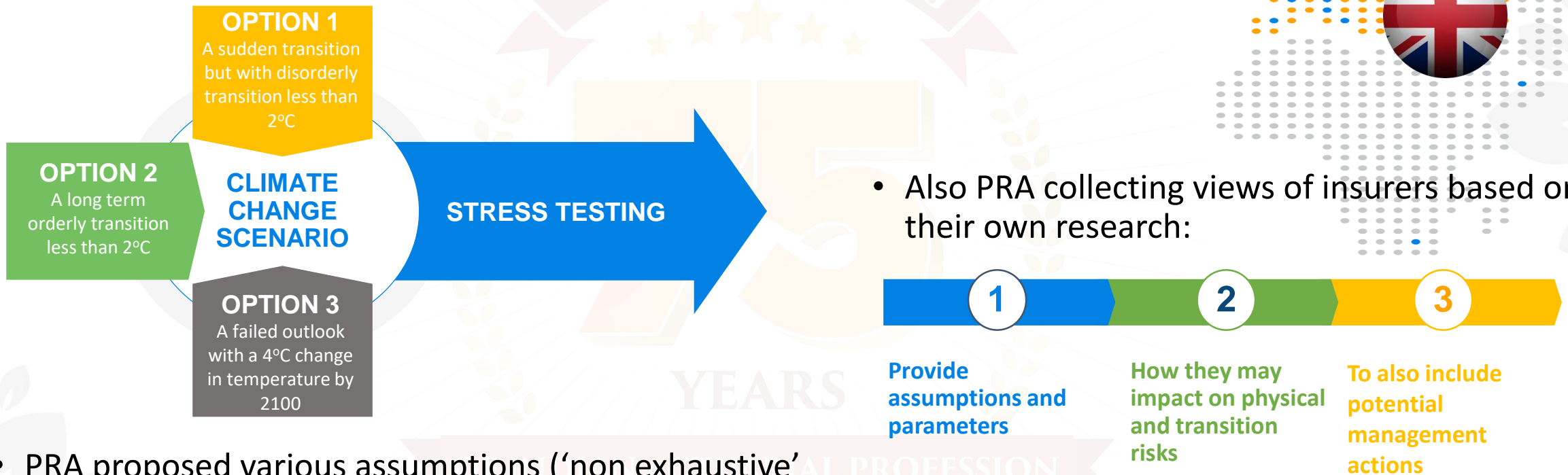
Risk Type	Description
Physical	First-order risks arising from weather related events, such as floods and storms.
Transition	Financial risks arising from the movement to a lower carbon producing economy, this would include the re-pricing of carbon-intensive assets
Liability	Risks that could arise for corporates or insurance firms from parties who have suffered loss and damage from climate change, and seek to recover such losses from others.

A simple risk framework to combine climate risk factors with common

Risk grouping	Physical	Transition
Market		
Longevity		
Mortality / Morbidity		
Lapse		
Counterparty		
Operational		
Non-life reserving		
Health underwriting		
Reputational		

Examples - UK experience

- Prudential Regulation Authority (PRA) now includes a Climate change scenario as part of Stress Testing.
- Three options considered:



- PRA proposed various assumptions ('non exhaustive' and 'investigative' in nature). Firms welcome to use their own assumptions.

Scenario analysis

What are the key components (and considerations) of scenario planning?



Example - Singapore experience

Date: For Parliament Sitting on 4 February 2020

Name and Constituency of Member of Parliament

Mr Louis Ng Kok Kwang, MP, Nee Soon GRC

Question:

To ask the Prime Minister (a) whether the Government plans to include climate risk, particularly climate change-related risk, in MAS's annual industry-wide stress test (IWST), in line with what the Bank of England is doing and what the International Monetary Fund (IMF) recommends for central banks; and (b) if not, why the Government is choosing not to do so.

Answer by Mr Ong Ye Kung, Minister for Education, on behalf of Mr Tharman Shanmugaratnam, Senior Minister and Minister in charge of MAS:

1. The Monetary Authority of Singapore (MAS) takes climate change-related risks seriously as a financial supervisor. Financial institutions are potentially exposed to such risks, because they provide financing and insurance services to businesses that can be impacted by a wide range of climate change-related events, including natural catastrophes. There are also risks arising from changes to public policies, technologies, or consumer preferences that can impact businesses significantly. Climate change is therefore increasingly relevant to financial institutions, both because the risks will be on their balance-sheets, and because they will play a role in enabling their customers and the economy at large to make a transition - here in Singapore as well as abroad.
2. MAS is in fact a founding member of the global Network for Greening the Financial System, which develops best practices for a more sustainable financial industry. Locally, we will be issuing a consultation paper on Environmental Risk Management guidelines for various financial institutions in the first quarter of this year.
3. MAS has already started to stress test for climate change-related risks. For example, in the 2018 Industry-Wide Stress Test, MAS subjected insurers to a scenario featuring extreme flooding, and they had to consider the impact of higher claims on their balance sheets arising from damage to insured properties.
4. But the methodologies for stress testing climate change-related risk are still at a nascent stage, as international regulators recognise. The Bank of England, mentioned by Mr Ng, has acknowledged that central banks and the financial sector are still building capacity to model financial risks arising from climate change. The IMF too is working to improve its climate change-related stress scenarios.
5. MAS is working towards incorporating a broader range of climate change-related risks in thematic scenarios as part of a future Industry-Wide Stress Test.



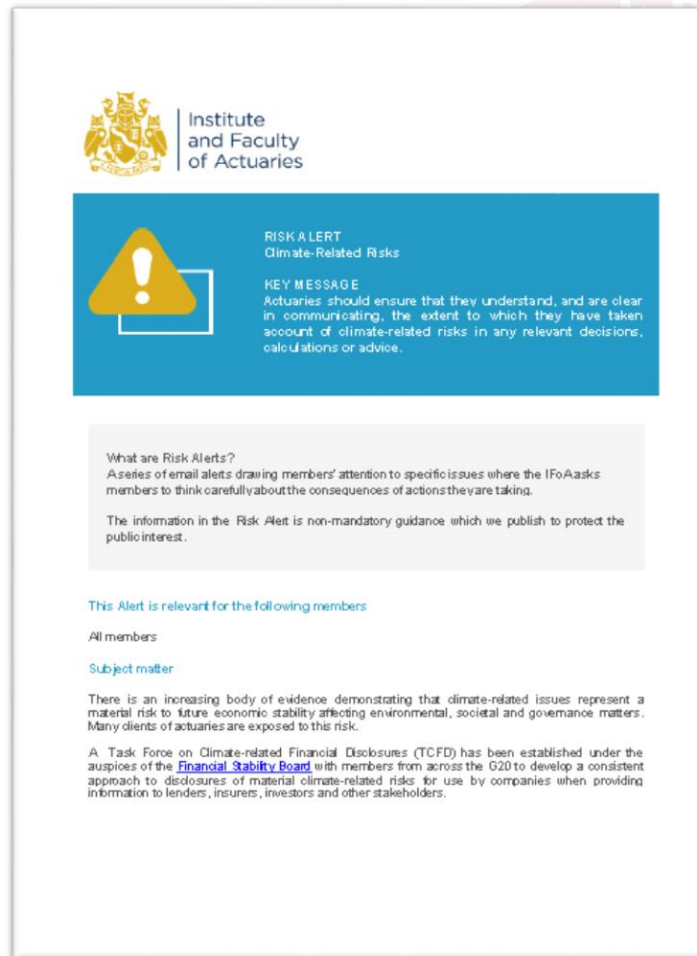
Conclusion

- Already required for Extreme Flooding
- MAS recognizes the nascent stage
- Now looking at a broader range of climate related risks as part of Industry-Wide Stress Test

The actuarial profession's response

UK has set up a working party for Life Actuaries

1 Issued a Risk Alert in 2017



Institute and Faculty of Actuaries

RISK ALERT
Climate-Related Risks

KEY MESSAGE
Actuaries should ensure that they understand, and are clear in communicating, the extent to which they have taken account of climate-related risks in any relevant decisions, calculations or advice.

What are Risk Alerts?
A series of email alerts drawing members' attention to specific issues where the IFA asks members to think carefully about the consequences of actions they are taking.

The information in the Risk Alert is non-mandatory guidance which we publish to protect the public interest.

This Alert is relevant for the following members
All members

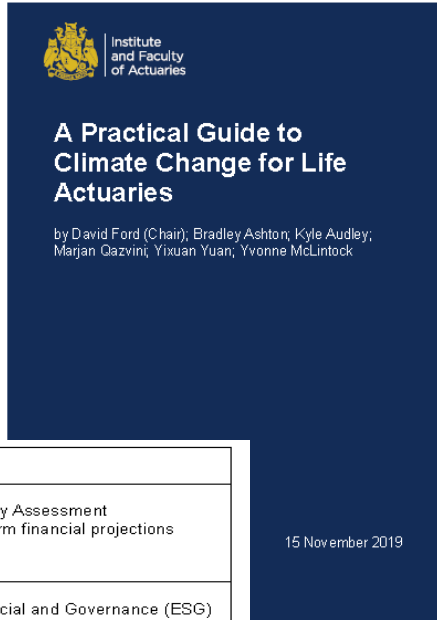
Subject matter
There is an increasing body of evidence demonstrating that climate-related issues represent a material risk to future economic stability affecting environmental, societal and governance matters. Many clients of actuaries are exposed to this risk.

A Task Force on Climate-related Financial Disclosures (TCFD) has been established under the auspices of the [Financial Stability Board](#) with members from across the G20 to develop a consistent approach to disclosures of material climate-related risks for use by companies when providing information to lenders, insurers, investors and other stakeholders.

2 Issued a Practical Guide

Some examples of how climate change may impact the work of life actuaries:

Impact Area	Areas of Actuarial Work	Examples
Changes to economic growth and performance in wider economies. Effects of these on the demand for insurance products and their pricing	Product Design Reserving Financial / Strategic Planning	Product Pricing Own Risk Solvency Assessment (ORSA)/Longer term financial projections
Changes to investment over or underperformance: whether due to direct climate impacts on specific assets, regulation or restrictions leading to 'stranded assets', longer term investment opportunities in capital intensive climate change mitigation or transitions	Investment advice Product Design Reserving Investment Strategy Investment governance	Product Pricing Environmental, Social and Governance (ESG) investments/ Socially Responsible Investments (SRI) Setting long term economic assumptions Asset Liability Matching Matching Adjustment Strategic and tactical asset allocations Mark to model asset valuation of long-term illiquid investments such as mortgages.
Changes to current mortality and morbidity and uncertainty around future trends	Product Design Reserving	Product Pricing Capital Management Reinsurance Setting long term demographic assumptions Explicit allowances of climate change considerations in mortality and morbidity models
Changes to insurance regulatory environment	Has potential to affect all areas of actuarial work	Risk governance Risk reporting Corporate level disclosures Customer / distributor disclosures Outsourcing arrangements Capital Management



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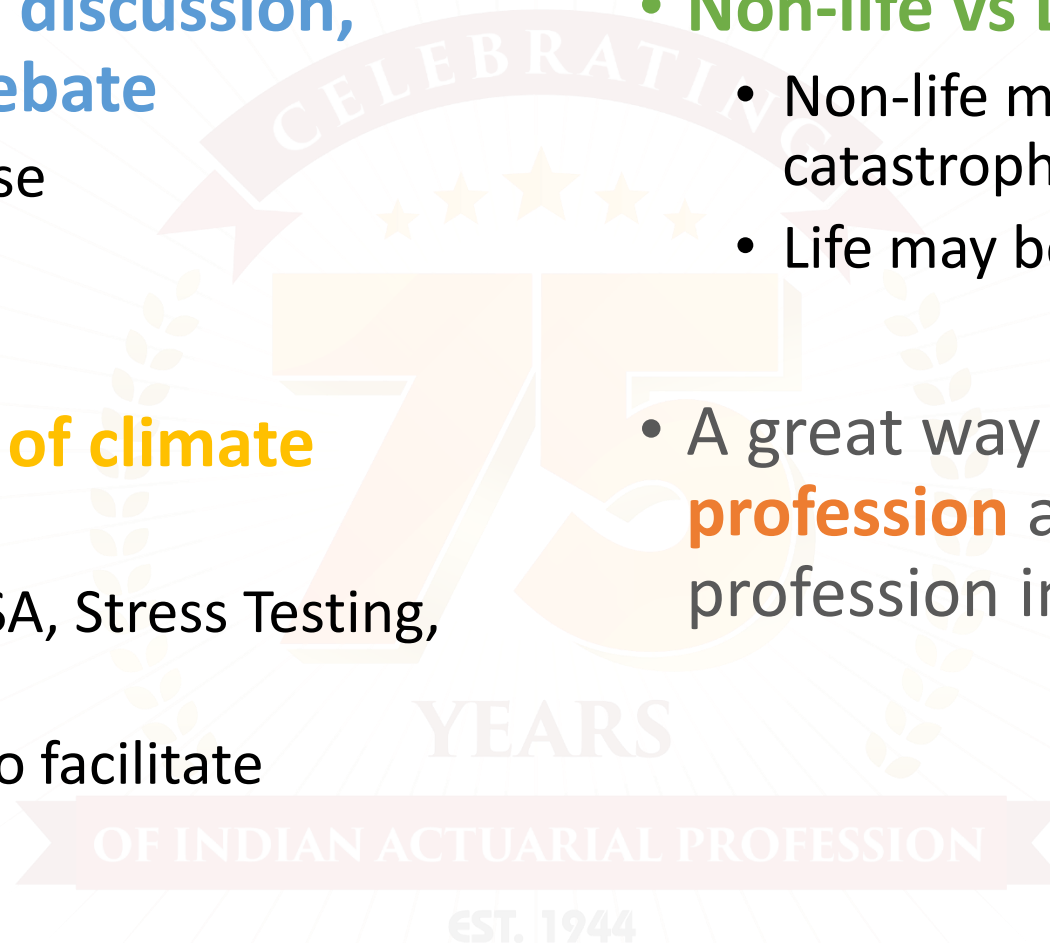
A Practical Guide to Climate Change for Life Actuaries

by David Ford (Chair), Bradley Ashton, Kyle Audley, Marjan Qazvini, Yixuan Yuan, Yvonne McLintock

15 November 2019

The opportunity for consultants

- **Participate in the discussion, and add to the debate**
 - Promote expertise
 - It is 'Risk'!
- **Raise Awareness of climate risks**
 - Extension of ORSA, Stress Testing, Scenarios
 - Support clients to facilitate discussion
- **Non-life vs Life**
 - Non-life may be 'more natural' eg catastrophe, etc.
 - Life may be more challenging
- A great way to **promote the profession** and to extend the profession into 'wider fields'





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Thank You