

SAS Afternoon Forum Actuaries in Sustainability

What is ESG in Insurance?

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With you today



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1. What is ESG in the context of sustainability?
 - Environmental Social Governance
 - Environmental Sustainable Growth
 - Economic Scenario Generator

2. How much carbon dioxide (CO₂) do you generate (per passenger) in one business class (return) flight between Singapore and London?
 - 3 tonnes
 - 5 tonnes
 - 9 tonnes

3. What is Singapore's current carbon tax rate?
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 - \$10 per tonne CO₂
 - \$15 per tonne CO₂



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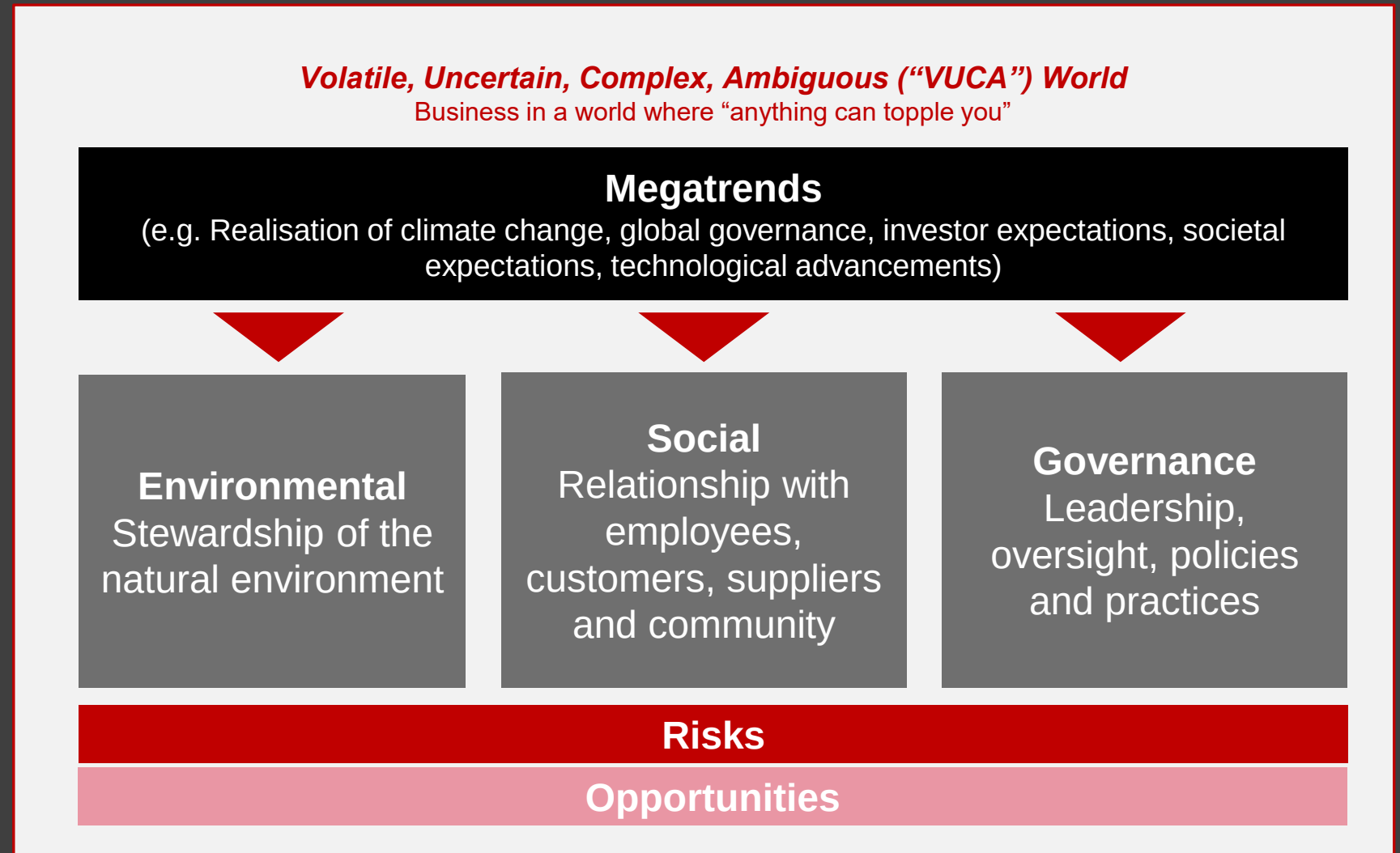
Agenda

1. What is ESG?
2. Spotlight on climate risk
3. How is climate risk a financial risk?
4. Regulatory developments
5. How are Insurers responding?
6. Actuaries – rise to the occasion

Understanding ESG

“Humanity has the ability to make development sustainable to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs.”

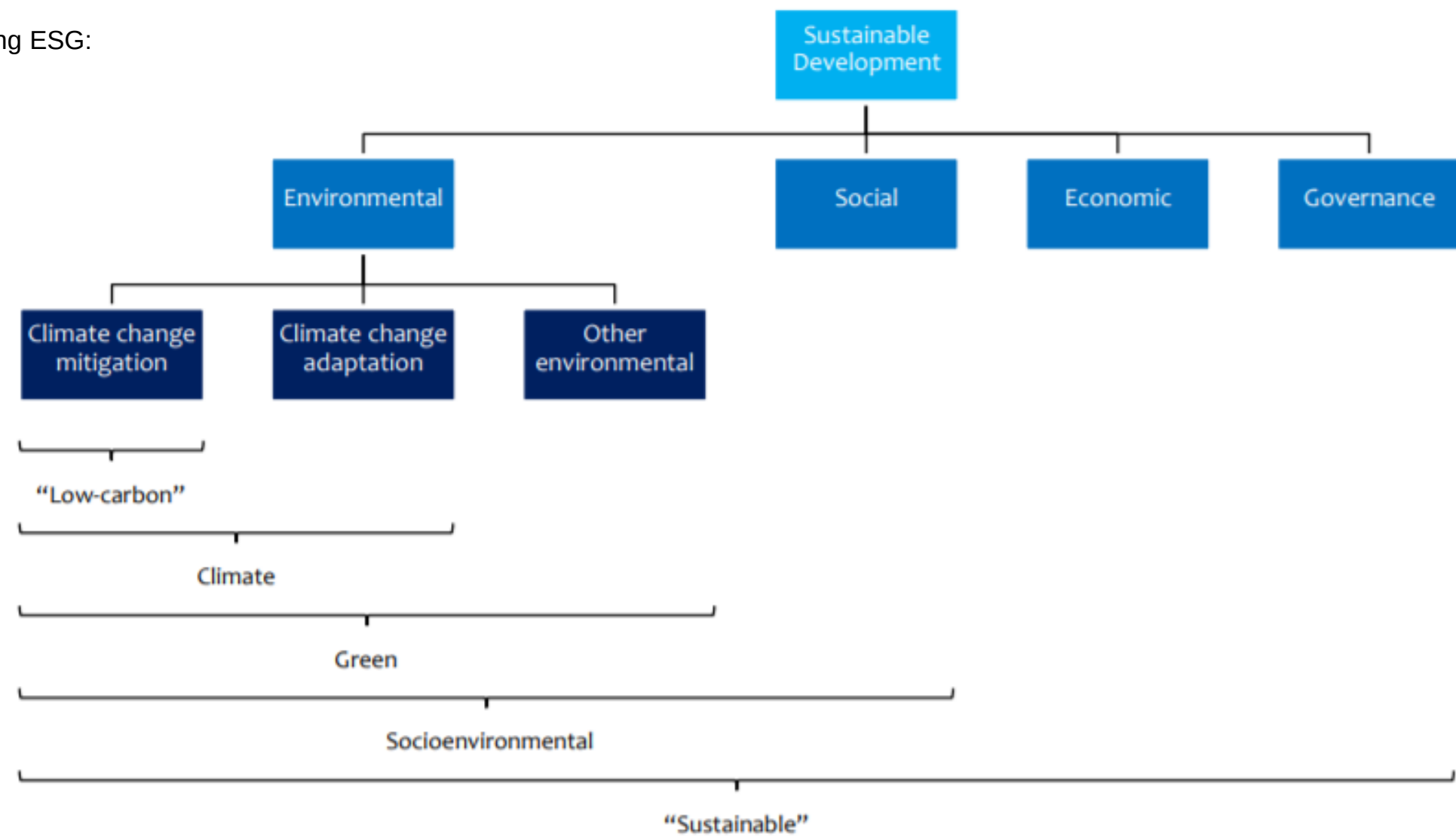
The Brundtland Report, World Commission on Environment and Development



Source: PwC Singapore point of view

The broad terms of ESG

Schema for defining ESG:



Source: UNEP Definitions and Concepts Background note

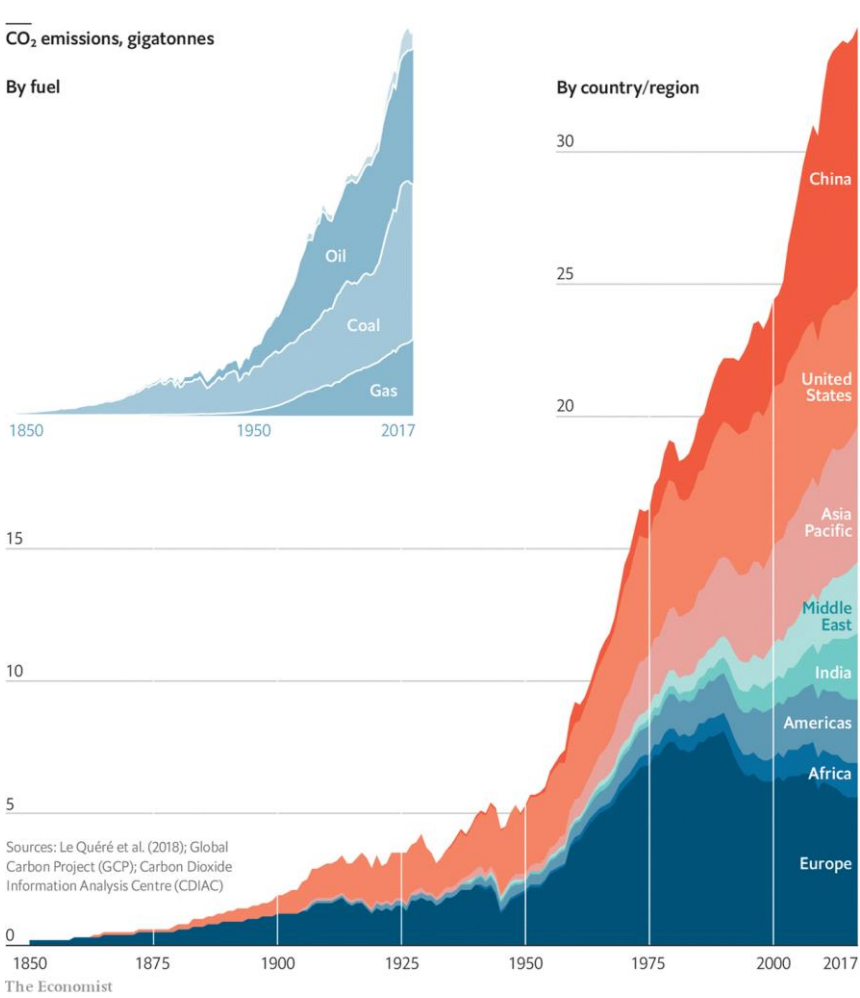
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Spotlight on Climate
risk

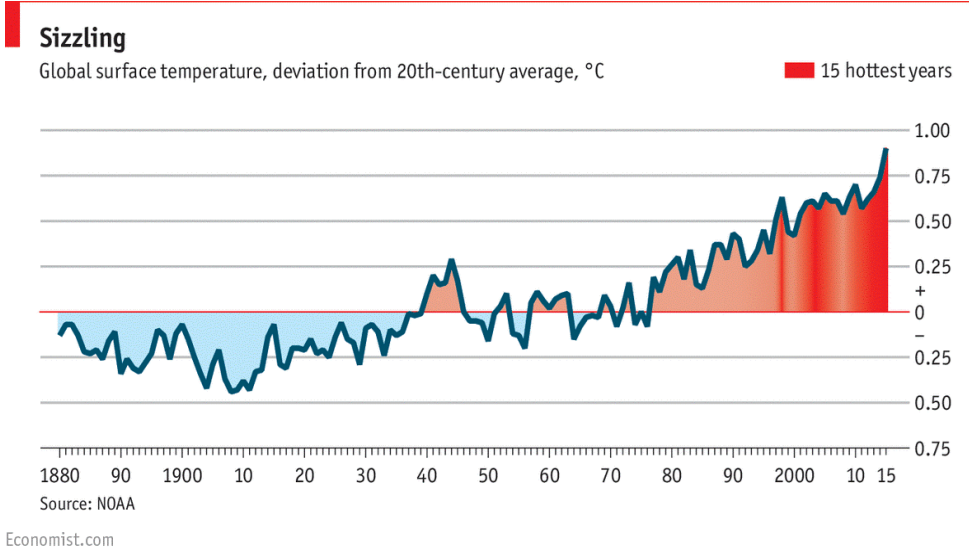


The increase in greenhouse emissions contribute to climate change

Significant increase in CO₂ emissions in the past 50 years



Global temperatures have increased as a result

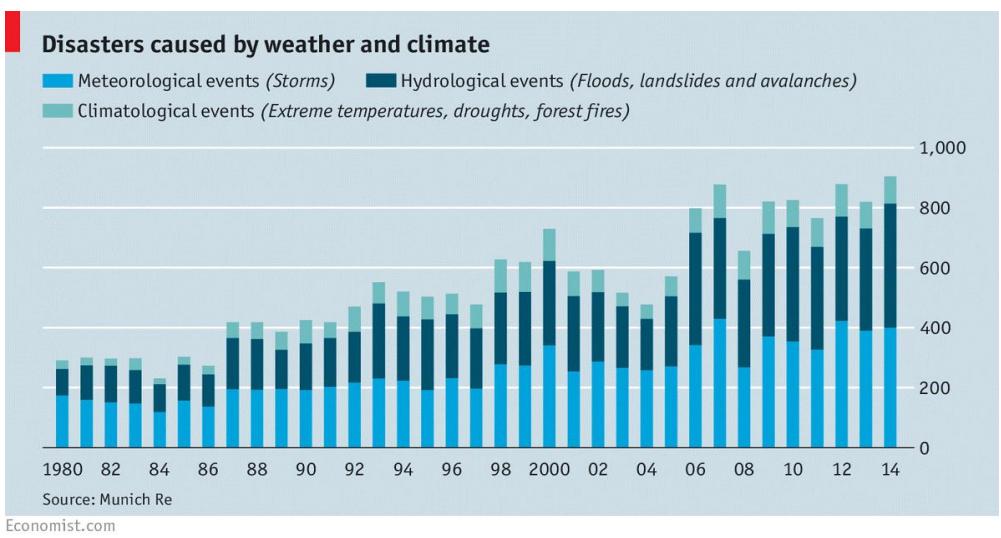


The stock of carbon dioxide in the atmosphere has increased significantly from pre-industrial levels, contributed by different countries over the years.

This has caused the parts per million (PPM) of carbon dioxide in the atmosphere to increase to over 400 PPM and has caused temperatures to increase.

It would appear that disasters caused by weather and climate have increased and more of these effects are expected to accentuate as temperatures increase.

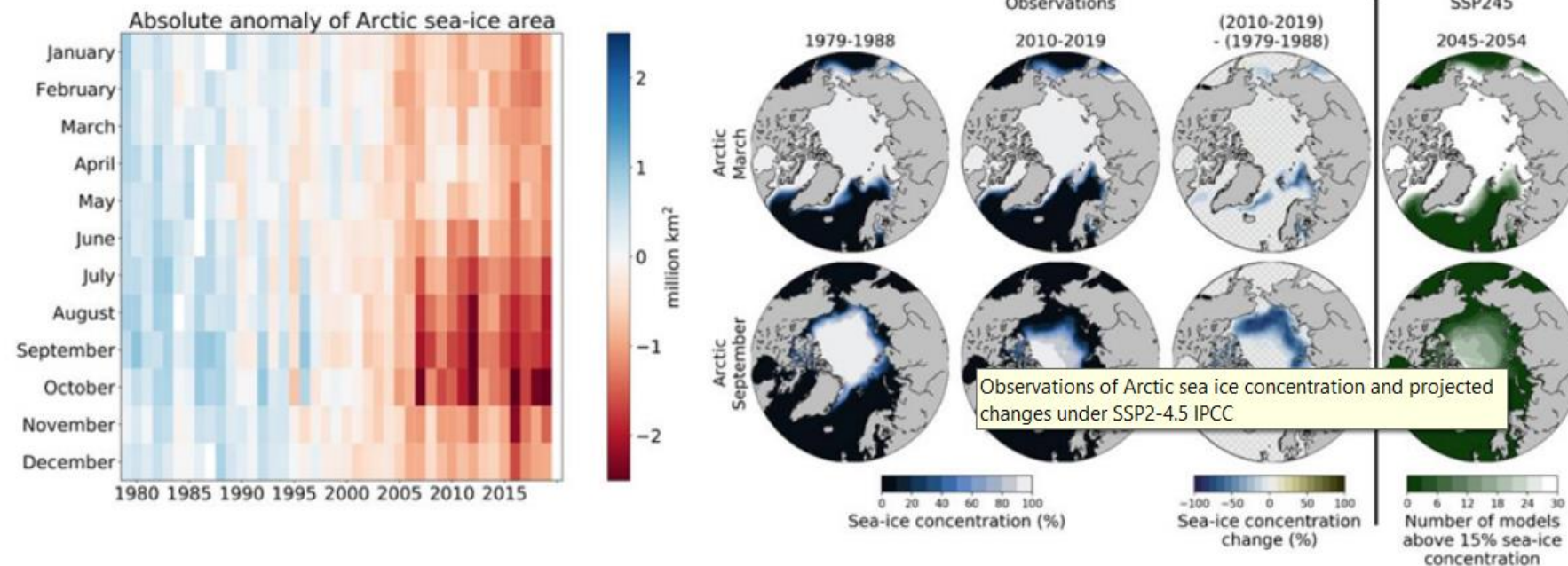
Global disaster caused by weather and climate are on the uptrend



Climate change is also causing ice and snow to melt across much of the planet, contributing to rising sea levels.

Arctic sea-ice historical records and CMIP6 projections

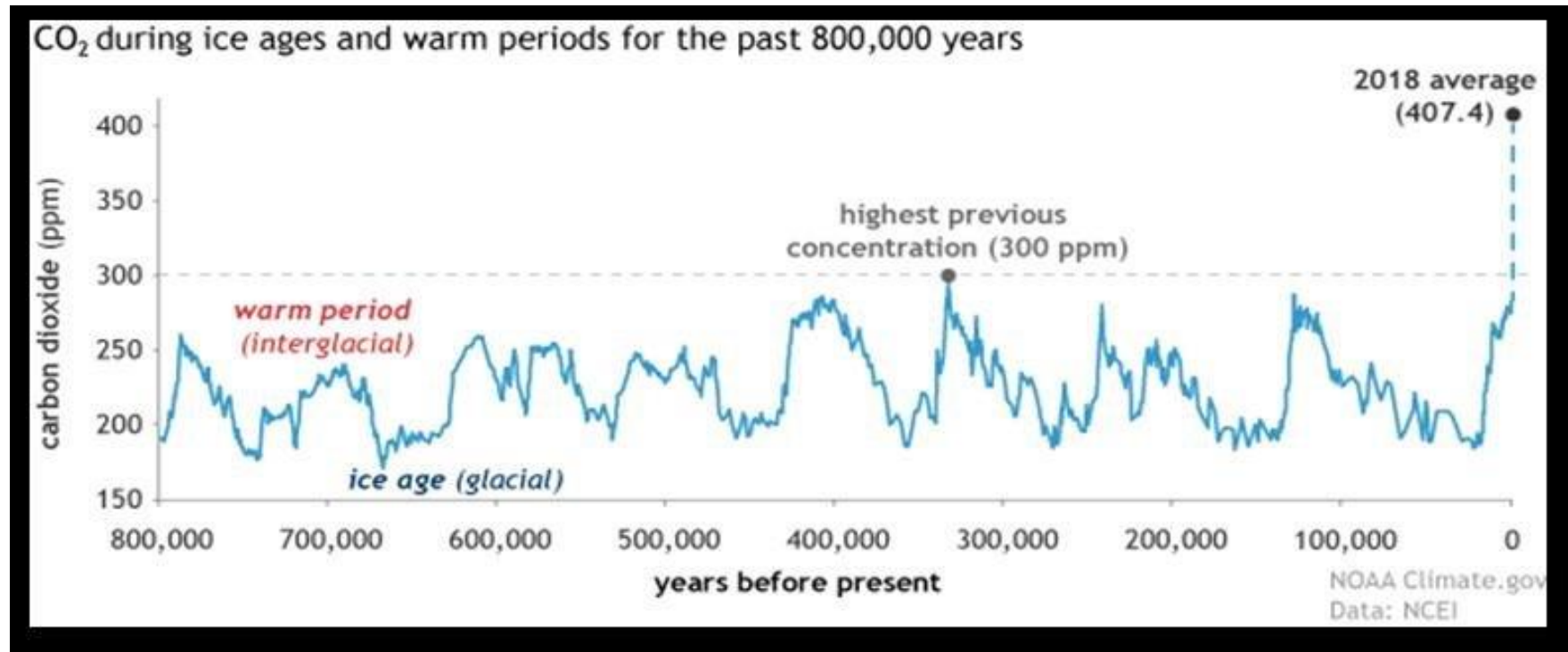
Anomaly time series, maps of seasonal sea-ice concentration and changes, and projected sea-ice metrics in SSP2-4.5



Observations of Arctic sea ice concentration and projected changes under SSP2-4.5. (Note that “sea ice concentration” is different from the “sea ice extent” metric used in the SROCC report). Source: IPCC (2021 (https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Chapter_09.pdf)) FAQ 9.2, Figure 9.15.

It has been estimated that between the decades of 1979-88 and 2010-19, average monthly August-October Arctic sea ice area shrunk by approximately one quarter – resulting in the loss of around 2m square kilometres (km²) of ice. (<https://www.carbonbrief.org/arctic-sea-ice-shrinks-to-second-lowest-summer-minimum-on-record>)

Human activity has continually driven up greenhouse gases (GHG) leading to rising temperatures



Since the industrial revolution, human activity has continuously driven up greenhouse gas (GHG) emissions, changing the temperature and variables such as precipitation, wind and cloud.

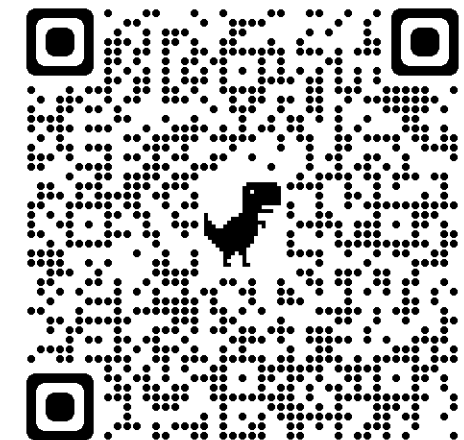
The goal of the Paris Agreement is to limit global warming to well below 2 degrees Celsius (and preferably 1.5 degree Celsius) compared to pre-industrial levels. We are already at around 1 degree Celsius from pre-industrial levels.

PwC's latest Banana Skins (2021) results indicated that insurers globally have considered climate risks as a top 5 risks. This was not seen in earlier years.

#	Life	Non-life	Composite	Reinsurance
1	Regulation	Climate change	Crime	Climate change
2	Interest rates	Crime	Regulation	Regulation
3	Technology	Technology	Interest rates	Crime
4	Crime	Regulation	Climate change	Technology
5	Investment performance	Human talent	Technology	Human talent

Crime, Technology and Regulation consistently ranked in the top 5 across all segments

Outside Top 5	Climate change	Interest rates	Human talent	Interest rates
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<https://www.pwc.com/gx/en/industries/financial-services/insurance/banana-skins-2021.html>

What did we hear on climate change?

“

The increasing frequency and severity of natural disasters like cyclones and floods is requiring constant **calibration of our pricing and capital allocation strategies.**”

Vice President
Reinsurer, Singapore

“

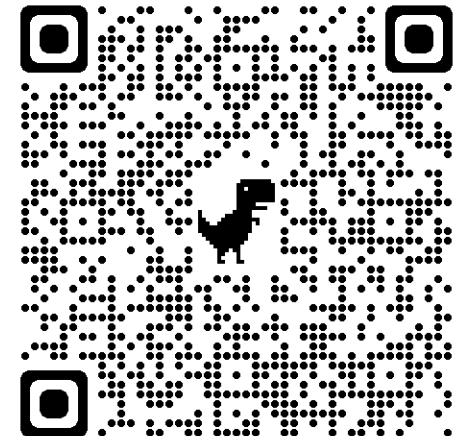
We have **no idea of the economic implications** a deteriorating environment will cause; we literally do not know ‘which bits will go wrong first’, so we cannot extrapolate the economic implications at all. Unpredictability is an anathema to the industry.”

Anna Petropoulos, Chief Executive
Apetrop USA

“

The risk to general insurers is clear, but life insurers are not immune to these risks either: whether through the **physical risk** (e.g., to real estate assets) or through **transition risk** (e.g., changing laws and/or market sentiment), asset portfolios could suffer losses.”

Actuary, Reinsurance



We don't know “which bits can go wrong first”... making extrapolation a challenge.

Antarctica's 'Doomsday Glacier' could meet its doom within 3 years

By [Mindy Weisberger](#) published 28 days ago

Thwaites Glacier is roughly the size of Florida, and holds enough ice to raise sea levels over two feet.



One of the largest glaciers in the world, Thwaites Glacier, is also the most affected by climate change.
(Image credit: NASA/James Yungel)

The adverse impact of climate change is so rapidly evolving that such rapid changes and their future ramifications cannot be quickly captured and understood.

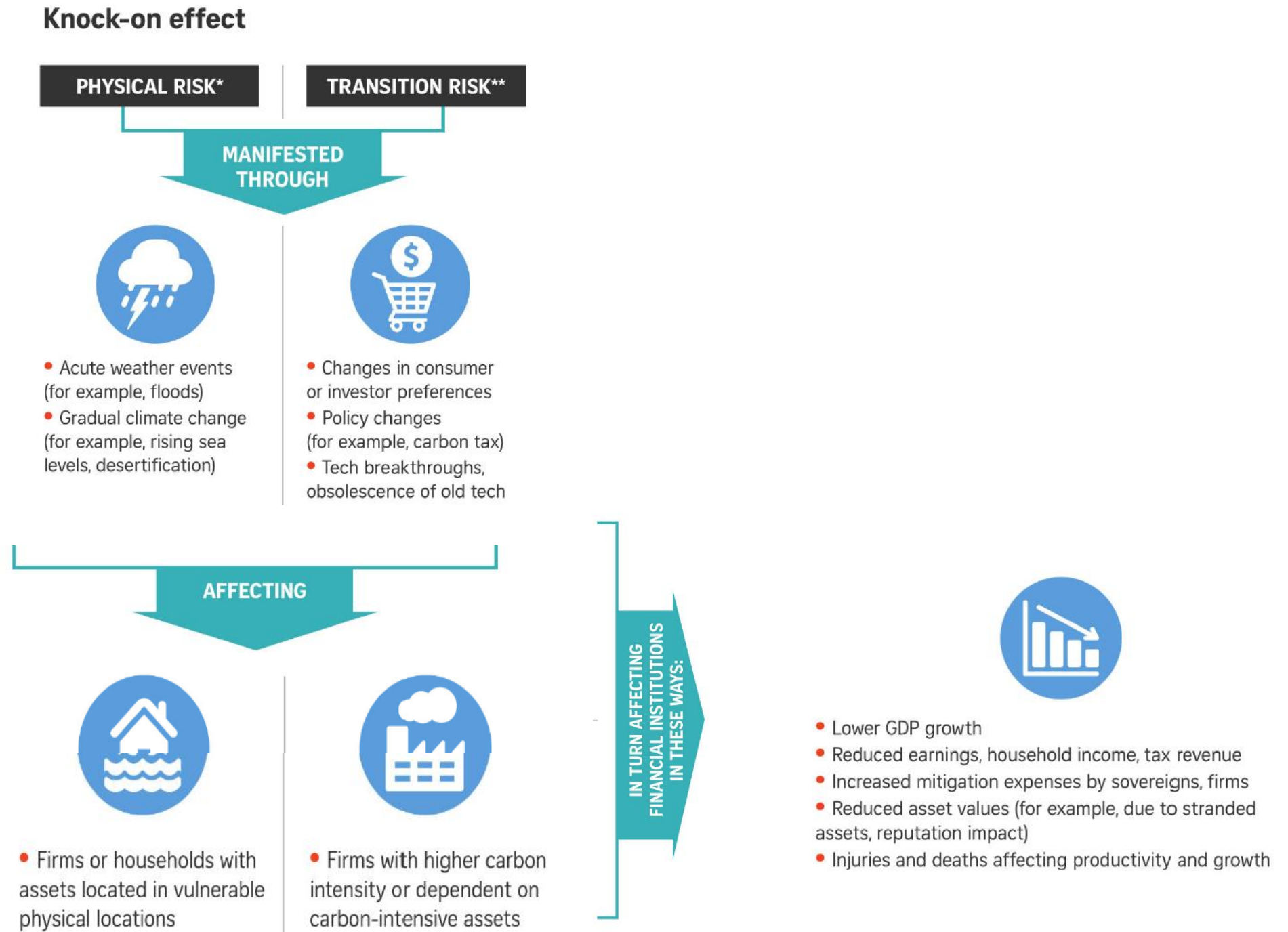
For instance, the accelerated melting of the Thwaites “Doomsday” glacier as reported in December 2021 is possibly not reflected even in the upcoming IPCC AR6 assessment, targeted to be released officially in February 2022.

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How is climate risk a financial risk?



How does climate or environmental risks translate into financial risks?

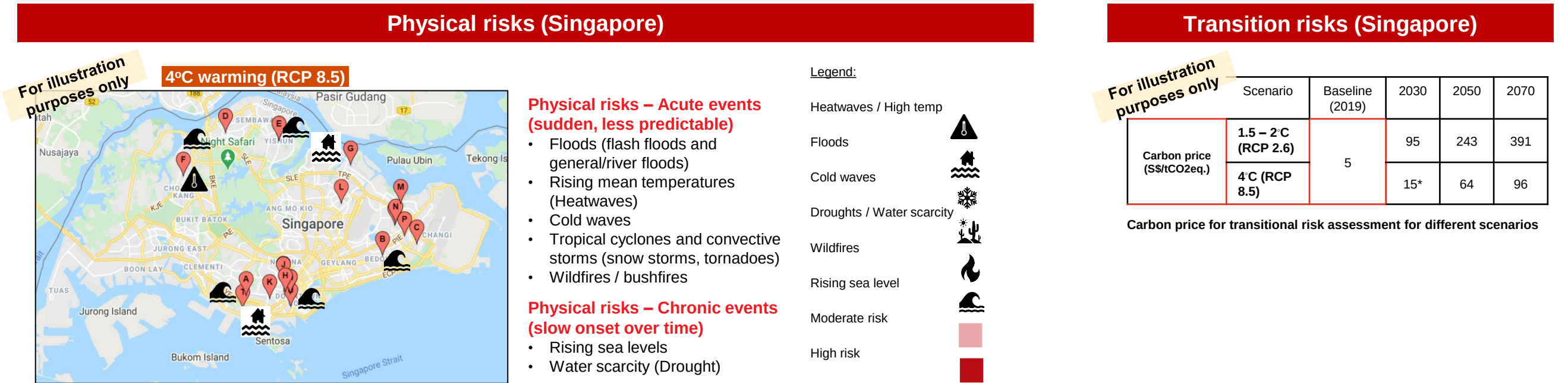


What is relevant within the Insurance Industry?

Physical Risks (examples)	Transition Risks (examples)
<ul style="list-style-type: none"> Attributed to acute (event driven) or chronic (longer term shifts) in climate patterns Direct damage to property and other assets Indirect impact from Supply Chain and Business disruptions Direct or indirect impact to premises, operations, transport needs, employees, etc Increased severity due to windstorms Increased severity due to flooding (due to rising sea levels) Increase in severity of heatwave leading to higher mortality, morbidity Increase in incidence and severity of zoonotic diseases, epidemics, leading to higher mortality and morbidity Worsening living conditions due to disruption in medical, health, social care, forced migration, damage to infrastructure due to flooding, etc. 	<ul style="list-style-type: none"> Risks associated with transitioning to low carbon economy. Policy risk : policy actions around climate change (either constraint impact of climate change or promote adaptation to climate change) E.g. carbon tax Technology risk : Technological improvements supporting transition to low carbon economy e.g. renewable energy, digitalisation Market risk : changes in supply/demand for selected commodities, products, services as climate related risks and opportunities are considered. Market/Investment risk : Lost of asset value within existing portfolios, stranded assets Legal risks : increased litigation due to climate change e.g. due to failure of organisations to address impact, insufficiency in disclosure etc. (Liability risks) Reputation risks: Tied to changing customer and investor perception of an organisation's contribution to or detracting from transitioning to low carbon economy. Pressure from authorities, investors or customers to: disinvest from carbon-intensive sectors, increase investments in the renewable energy sector, withdraw insurance support from projects and companies in carbon-intensive sectors, provide more detail disclosure of climate change vulnerability. Changes in motor liability risks – shift away from fossil fuels Changes in commercial risks from new or different manufacturing processes in a decarbonised world

Climate risks – Scenario analysis allows you to understand implications of such risks.

Traditional actuarial models may not support full analysis, data availability is one of the biggest challenge and constraint.



4

Regulatory and
reporting expectations



Recent ESG and Climate regulatory updates in Singapore

						
SGX Sustainability Reporting and Upcoming TCFD disclosures	MAS Env Risk Management Guidelines	Carbon Tax	Green procurement policies	TCFD ISSB	Temasek Linked Entities	Decarbonisation generally
<ul style="list-style-type: none"> • Comply or explain for SGX listed companies <p>Coming up:</p> <ul style="list-style-type: none"> • TCFD (climate risk disclosures) will be mandatory • Internal audit/pre-assurance ahead of mandatory external assurance 	<ul style="list-style-type: none"> • Mandatory Environmental Risk Management for all FIs. This includes banks, insurers, Asset Management, REITS 	<ul style="list-style-type: none"> • S\$5/CO2 Tonne for large emitters • Expected to increase to S\$15/CO2 tonne • Review of current carbon tax prices 	<ul style="list-style-type: none"> • Gov will revise their procurement policies to include a requirement to assess if the vendor is "green". 	<ul style="list-style-type: none"> • TCFD widely adopted as the best framework for climate risk • IFRS has established the International Sustainability Standards Board (ISSB) in November 2021. 	<ul style="list-style-type: none"> • Temasek will halve their portfolio emissions by 2030 and Carbon Neutral by 2050 • Subsidiaries need to decarbonise 	<ul style="list-style-type: none"> • General trends for serious companies to decarbonise

Follow on from COP 26 : Expect increased focus on ESG reporting with IFRS' formation of the **International Sustainability Standards Board ('ISSB')**

Reporting landscape fragmented and seen as an 'alphabet soup' of choice ...



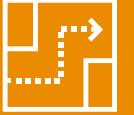
IFRS responded to the call for globalisation of sustainability standards ...



Why is this important? What does this mean for you?



What can happen next? What should you do?



Standards



Ratings



Principles and Guidelines



Announced the consolidation of bodies and creation of new international standards setter :



Published two prototypes:

1. Climate related disclosures
2. General sustainability disclosure requirements

- Global standards set the foundation for comparable and transparent ESG reporting.
- Recognised framework assists investors to make better informed decisions and close the gap on disclosure demands from stakeholders.
- Prototypes means the Board is on track for first climate standard in 2022.

- Review impact of climate risk and commitments at next reporting cycle.
- Continue to improve quality of climate disclosures.
- Going forward, auditors would be assessing risk of material misstatements in financial statements caused by climate related impact.

Other Climate related standards and frameworks



- Established by the Financial Stability Board in response to a request from the G20 and Central Bank to help identify the information needed by investors, lenders and insurance underwriters to understand and appropriately assess climate-related risks and opportunities.
- TCFD recommendations help a company assess the risks of climate change and its financial implications on the company (not vice versa)



- The Greenhouse Gas Protocol (GHG Protocol) is the main standard for carbon accounting
- Guidance on measuring, managing and reporting greenhouse gas emissions from their operations and value chains.
- Three scopes of emissions for accounting and reporting purposes are defined: Scope 1, 2 and 3 emissions
- Scope 1 – direct emissions from business activities (within control).
- Scope 2 – indirect emissions from energy purchase and consumption.
- Scope 3 - indirect emissions from activities (from sources not owned or controlled).



Taskforce on Nature-related
Financial Disclosures

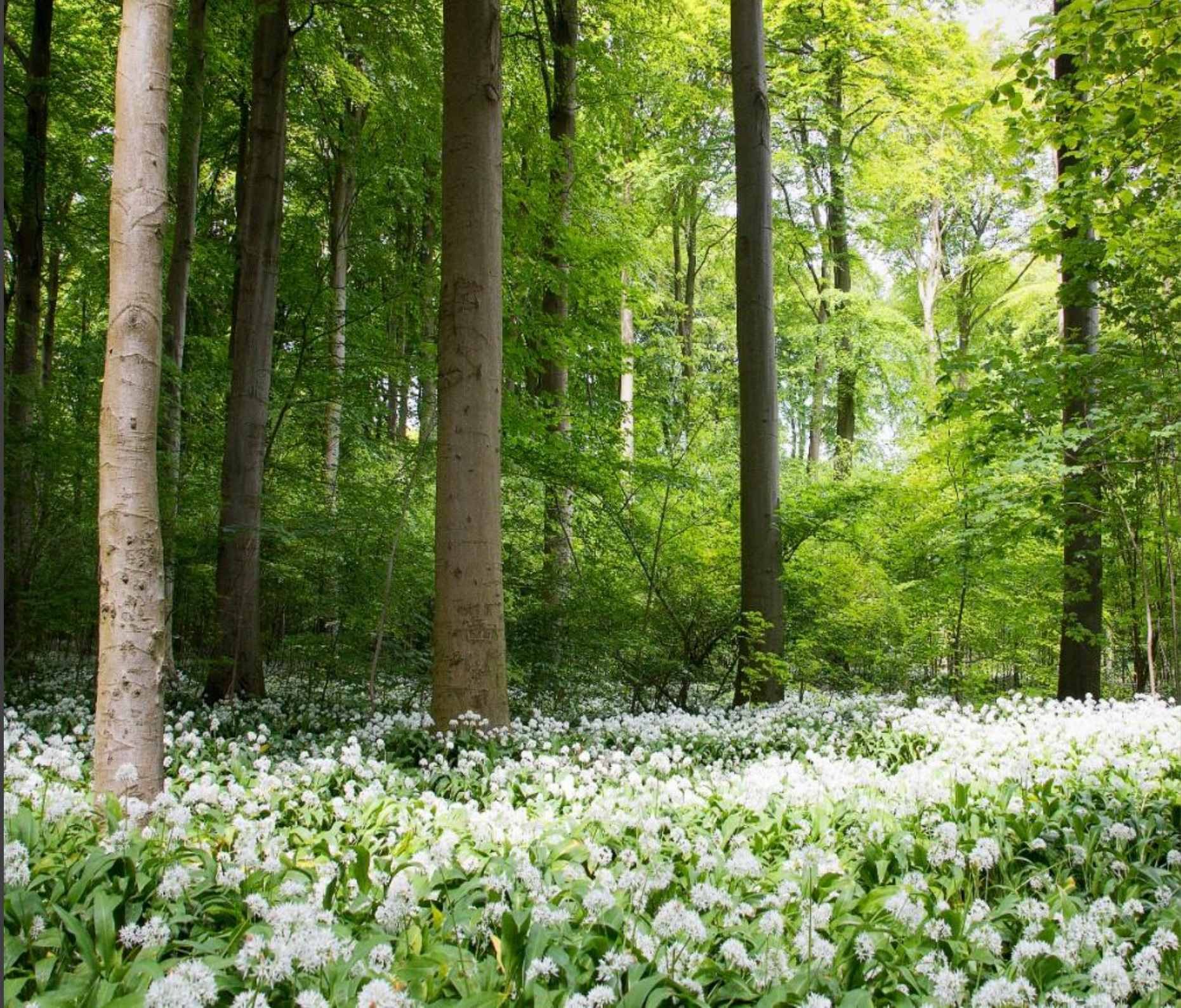
- Nature loss poses risks for business and investors are now starting to take natural capital risks seriously.
- The G20 Environment Ministers and [G7 supported the launch of TNFD.](#)
- The goal is to provide a framework for organisations to report and act on evolving **nature-related risks**, to support a shift in global financial flows toward nature-positive outcomes.
- On 4 June 2021 the TNFD published their [Proposed Technical Scope Recommendations for the TNFD.](#) adopting the same 4-pillar framework as the TCFD, but with broader definition of “nature-related risks and opportunities” into each pillar. Final framework by 2023.

UN Sustainable Development Goals (SDGs)



5

How are Insurers
responding?



Sustainability is changing businesses – pivoting from profit maximisation towards impact maximisation.



More Trust

Inspire employees,
strengthen relationship
with suppliers
and customers



More Growth

Expand business,
new markets,
new product or service
offerings



Lower Risk

Managing risks related
to climate change
and social change,
responding to (upcoming)
laws and regulations



Lower Costs

Improved efficiency,
better margins

European Insurers tend to be ahead of the curve in ESG adoption and integration into business strategy.

Large multinational French Insurer	<ul style="list-style-type: none">• Clear and ambitious ESG strategy and goals• Alignment to standards (TCFD, SASB) with external assurance• Robust ERM framework• Published ESG data within financial statements• “Big ideas” on ESG strategy encompassing climate change, health risk prevention and responsible data	Large German multinational Insurer	<ul style="list-style-type: none">• Sustainability reporting aligned to PRI, TCFD• Commitments to UNEP FI PRI, Net Zero Alliance, with external assurance• Published integration of ESG in ERM framework• ESG integration in Group-wide guidelines on risk management, investment and underwriting• Clear, ambitious goals, KPIs and other metrics
Large Swiss Insurer	<ul style="list-style-type: none">• Commitments to UNEP FI PRI, sustainability reports aligned to GRI, SDGs with external assurance• Robust ERM framework• Published responsible investment approach• Develop ESG aligned products	Large Swiss multinational Reinsurer	<ul style="list-style-type: none">• Sustainability reporting aligned to PRI, TCFD• Commitments to UNEP FI PRI, Net Zero Alliance, with external assurance• Clear ESG governance and strategy extending to operations and investments• Clear, ambitious goals, KPIs and other metrics
Large German multinational Reinsurer	<ul style="list-style-type: none">• Forward looking leader in climate risk• Commitments to UNEP FI PRI, net zero alliance• Robust ERM framework• Published ESG strategy with ambitious goals and net zero targets		

Asian Insurers are also catching up ...

Large Hong Kong based multinational insurer

- Clear ESG strategy aligned with company mission
- Alignment to TCFD reporting
- Minimum compliance to fulfilling local environmental or climate risk regulations

Large Japan life insurer

- Clear alignment between ESG strategy and company mission, guided by company's Social Responsibility Charter
- Continued focus in improving external ratings, and increased presence within ESG investing indices
- Focused on impact investing
- Active in communities served around the world

Large Singapore multinational insurer

- Alignment to UNEP PSI commitments
- Minimum compliance to fulfilling local environmental or climate risk regulations

Large British based multinational insurer

- Alignment to TCFD reporting
- Commit to human capital and social capital empowerment
- Alignment to SDGs at a target level for respective goal settings

Large Singapore insurer

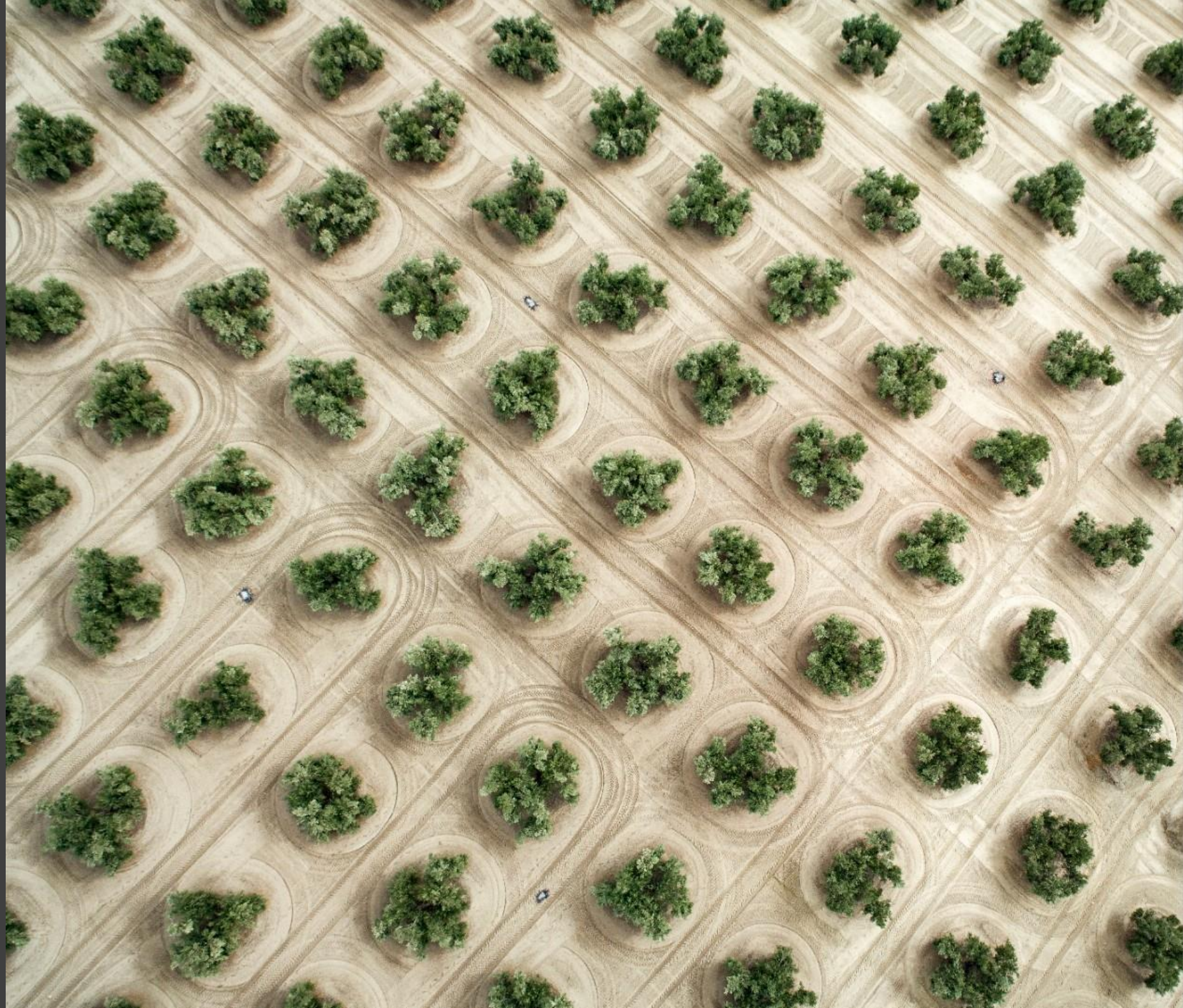
- Sustainability reporting, started out with Social Impact Report publications
- Minimum compliance to fulfilling local environmental or climate risk regulations
- Clear ESG related goals set

Large China-based insurer

- Sustainability reporting, includes external assurance
- Commitments to UNEP PSI
- Clear ESG governance and strategy extending to operations and investments
- Clear and ambitious goals, KPIs, and other quantitative metrics

6

Actuaries : rise to the occasion



How can we contribute?

- ESG Upskilling – new terminologies, accounting, physical science, legal, tax, etc... (outside our insurance comfort zone!)
- Modelling and Quantitative Skills
- New methodology, new techniques
- Problem definition / Control Cycle / Systems Thinking
- Open and growth mindset
- Learn to work with various SMEs from various fields – physical science, biological science, engineering, accounting, law, tax, political science... etc.

Thank you

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