



Latest Trends and Developments Related to Climate Change: What does it mean for the insurance industry?

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Program

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Climate risk encompasses broad range of risks

Physical risks

Climate- and weather-related events impacts on property, infrastructure, supply chains and trade (e.g., floods, storms)

Increased severity and frequency of extremes or long-term shifts in climate patterns

Liability risks

Those suffered loss or damage from climate change seeking compensation from those they hold responsible

 Potential to hit carbon extractors and emitters – and, if they have liability cover, their insurers – the hardest"

Transition risks

Financial risks from transitioning towards a lower-carbon economy

Policy, technology and physical risks could prompt asset-value reassessment (stranded assets)

Reputation risks

When brand names are associated with climate-related damages or perceived mismanagement of the above risks



Three UN Frameworks has profoundly impacted governments' approaches to disaster risk management, climate change, and sustainable development ...

Key developments based on UN frameworks since 2015

Comprehensive approach with four key components

2015 – a pivotal year:

- ✓ 190 governments adopted: (1) Sendai Framework for Disaster Risk Reduction (2015-2030), (2) COP21 Climate Change Paris Agreements; (3) 2030 Agenda for Sustainable Development.
- ✓ Common thread: Convergence <u>from a highly</u> <u>fragmented</u> line-ministry silos <u>towards a</u> <u>comprehensive approach to disaster and climate</u> <u>risk management</u> (resilience and adaptation)
- ✓ Integration into <u>national development</u> <u>planning/budgeting</u> and <u>involvement of ministers</u> <u>of finance</u> are "slowly" coming into focus.
- Role of insurance is being recognized.

1. Risk Assessment

2. Risk Reduction and Prevention:

Policy, regulatory and institutional frameworks:

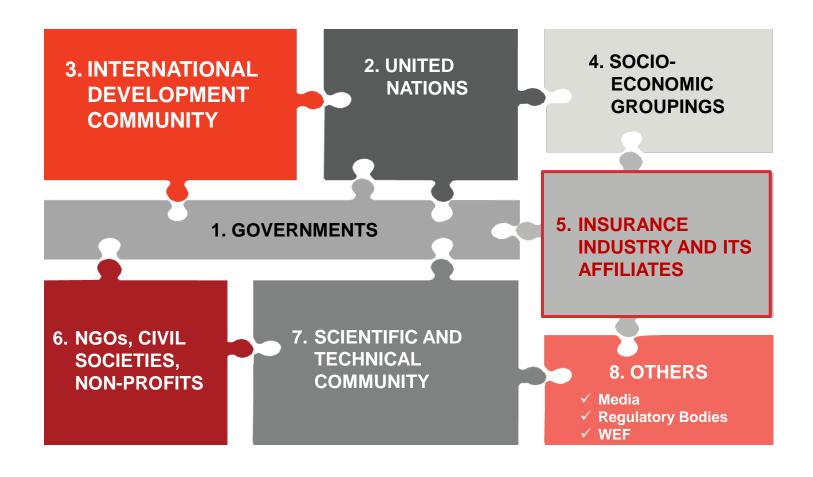
National to Local

3. Risk Financing and risk transfer

4. Resilience building post event



A "highly" complex and diverse global stakeholder landscape supports governments with implementation





On average, insurance protection gap has been estimated to be around 75 per cent for natural hazards globally

(~50% for high- and ~90% for middle- and low income countries)

Seven overall challenges

- Access to risk information and risk pricing difficulties
- Public policy and regulatory issues
- Stakeholder-relevant products and services
- Lack of awareness about insurace
- 5. Limited take up
- Domestic insurance market
- 7. Scale and sustainability

More specific issues to solve

2. High-income countries Also experience

- Fluctuating capacity and Market appetite
- Risk-pricing difficulties
- Public policy & political motivation



1. Overall

- Difficulties in risk assessment due to lack of data
- Asymmetrical information & adverse selection
- Limited take up
- Moral hazard unless insurance is incentivizing riskreducing behavior

- Mid- and low-income countries also have additional issues
 - Lack of
 - Data
 - Risk modelling tools
 - Technical expertise
- Developed domestic finance sector
- Regulatory constraints
- Need for global (re)insurance capacity and expertise
- High distribution and claims settlement costs
- Scale and sustainability

Relevant Developments in Climate Mitigation and Transitioning to Low-Carbon Economy



The dialogue in climate change is increasingly focused on risks, solutions and economic opportunities

2015 COP21
Climate
Change Paris
Agreement

National Economic Planning and Budgeting

2

3

National Climate-Related policies 4

Reporting & Compliance with Different Origins

5

Investor and Marketrelated G20 FSB – TCFD* (Possible gamechanger)

- International policy •
 Framework
 success, but
 voluntary!
- Common but differentiated responsibilities
- 2016: Ratified
- 2020: Into force
- 2050: Net-zero emission target

- National decarbonization plans are being submitted
- National strategies vs. sectoral approaches (Canada China, Colombia, Italy, Kenya, Peru, Singapore, UK)
- Governments pressing ahead with carbon taxes or emissionstrading systems (Canada, Ireland, Australia, Chile, Scandinavia, and Washington State)
- G20 Green
 Finance Study
 Group and China
 Presidency

- Governments (US, UK, EU, France law 173, Australia)
- Exchanges listing requirements and indices (Singapore, Australia, Brazil)
- NGOs (OECD, UNEPFI, CDP, CDSB, GRI, IIGCC, AODP)
- Banking

- Shareholders' Awareness & changing sentiments
- Increasing investor interest and coalitions
- Global Green Finance Committee (ICMA and GFMA)
- Rating agencies (S&P, Moody's)

- <u>Industry-led</u> (Carney & Bloomberg)
- Increased transparency for investors
- General and sectorspecific standard reporting in annual reports (voluntary)

High risk of policy & regulatory fragmentation

Fragmented sectoral approaches are dominating

Stranded
Assets
increasingly a
reality sooner
than later

Combination of mandatory and voluntary; but highly fragmented

Transparency & credit rating downgrades linked to climate risk!

Climate risk becoming a core business issue.



G20 FSB-TCFD is changing the paradigm; elevating climate risk from a social and corporate responsibility to a core business issue!

Governance	The organization's governance around climate-related risks and opportunities
Strategy Risk Management	The actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning
Management • Metrics	The processes used by the organization to identify, assess, and manage climate-related risks
and Targets	The metrics and targets used to assess and manage relevant climate-related risks and opportunities

- Could potentially replace the highly fragmented reporting requirements with a **more** consistent framework for publically-traded companies.
- Data sharing, need for standard approaches to 2-degree scenario testing, expertise and integration may pose challenges!



Eight Take Away Messages

- 1. <u>Four different types of climate-related risks</u> could lead to financial and economic impacts: Physical, Liability, Transition and Reputational risks
- 2. Economic impacts of weather-related extremes are on the rise (physical Risks), exacerbated by climate change and development patterns
- 3. Since 1960s three UN international policy negotiations in <u>disaster risk management</u>; <u>climate change</u> and <u>sustainable development</u> profoundly impacted the way governments manage these issues
- 4. 2015: a pivotal year Convergence towards a comprehensive approach to extreme event risk Management is being considered by governments: Risk-based and including: (i) preventive measures (ii) emergency preparedness and early warning; (iii) risk financing and risk transfer; (iv) further resilience through improved reconstruction
- 5. Integration into <u>national development planning/budgeting</u> and <u>involvement of ministers of finance</u> are "slowly" coming into focus. Role of insurance is being recognized.
- 6. <u>The climate change discussion has shifted</u> **from** "whether anthropogenic climate change is real or not and corporate social responsibility" **to** "determining sound pathways and economic opportunities towards a low carbon economy and institutionalizing climate risks into core business"!
- 7. Insurance industry could play an important role both as risk underwriters and as institutional investors, **but** a number of questions remain
- 8. The Geneva Association through its strategic/policy research and influencing activities is working with the global insurance industry and the global stakeholder landscape to address these issues



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Backup Slides



The Geneva Association issued its Climate Statement, signed by 68 member CEOs – Unprecedented industry-level convergence

Some Highlights

Investment in research and Knowledge Sharing in Risk Modelling, Risk Pricing, Prevention, etc.



Product innovation, market development, claims settlement to build resilience and to encourage transitioning to low carbon economy.



Adaptation and mitigation strategies and their cost/ benefits and building partnerships with the public sector.



Insurance products, investment strategies to support low-carbon energy encourages mitigation and adaptation efforts, such as **investing in low-carbon energy projects.**



Signatories of the GA Climate Statement (as of 19 November 2015)



- 1. Néstor Abatidaga, CEO, Sancor Seguros
- 2. Fadi AbuNahl, CEO, TrustRe
- Carlo Acutis, Vice President, Vittoria Assicurazioni S.p.A.
- 4. Dominic Addesso, President and CEO, Everest Re Group, Ltd.
- Khalifa Al-Subaey, Group President and CEO, QIC Group
- 6. Oliver Bäte, Chairman of the Management Board, Allianz SE
- 7. Inga Beale, CEO, Lloyd's
- 8. Albert Benchimol, President and CEO, Axis Capital Holdings Ltd.
- 9. Andreas Brandstetter, CEO, UNIQA Insurance Group AG
- 10. Charles Brindamour, CEO, Intact Financial Corporation
- 11. Carlo Cimbri, CEO, Compangnia Assicurazioni UNIPOL S.p.A.
- 12. Dean Connor, President and CEO, Sun Life Financial Inc.
- 13. Henri de Castries, Chairman and CEO, AXA Group
- 14. Patrick de Larragoiti Lucas, President, Sul América Seguros
- 15. Josef de Mey, Chairman of the Board, Ageas
- 16. Pierre de Villeneuve, Chairman and CEO, GIE BNP Paribas Cardif
- 17. Thierry Derez, Chairman and CEO, COVEA
- 18. Sten Dunér, President and CEO, Länsförsäkringar AB
- Toshiaki Egashira, Representative Director, Chairman of the Board, Mitsui Sumitomo Insurance Co.
- 20. Jari Eklund, Group Director, LocalTapiola Group
- 21. Ignacio Eyries, CEO, Caser Group
- 22. Stuart Fletcher, Chief Executive, BUPA
- 23. Lard Friese, CEO, NN Group
- 24. Patrick Frost, Group CEO, Swiss Life
- 25. Mario Greco, Group CEO, Assicurazioni Generali S.p.A.
- 26. Evan Greenberg, Chairman and CEO, ACE Group
- 27. Donald Guloien, President and CEO, Manulife Financial
- 28. Peter D. Hancock, President and CEO, AIG Inc.
- 29. Lianhong Huo, China Pacific Insurance (Group) Co., Ltd.
- 30. Constantine Iordanou, Chairman and CEO, Arch Capital Group Ltd.
- 31. Ajit Jain, President, Berkshire Hathaway Group
- 32. Denis Kessler, Chairman and CEO, SCOR SE
- Chang-Soo Kim, President and CEO, Samsung Life Insurance Company Ltd.
- 34. Andrzej Klesyk, President and CEO, PZU
- 35. Frédéric Lavenir, Director General, CNP Assurances
- 36. Michel Liès, Group CEO, Swiss Reinsurance Company Ltd
- 37. David. H. Long, Chairman & CEO, Liberty Mutual Group
- 38. Jorge Magalhaes Correia, CEO Fidelidade Group
- 39. Bronek Masojada, Chief Executive, Hiscox plc

- 40. Spiros Mavrogalos, CEO, Ethniki Insurance Company
- 41. Mike McGavick, CEO, XL Group, XL Catlin
- 42. Tomás Muniesa, CEO, Vida Caixa S.A.
- 43. Akio Negishi, President, Meiji Yasuda Life Insurance Company
- 44. Tomoatsu Noguchi, President and Chief Executive, The Toa Reinsurance Company Limited
- Torsten Oletzky, Chairman of the Board of Management, ERGO Versicherungsgruppe AG
- 46. Gonzalo Alberto Perez Rojas, President, Suramericana de Seguros S.A.
- 47. Charles Philipps, CEO, Amlin plc
- 48. Katsutoshi Saito, Chairman of the Board, The Dai-Ichi Life Insurance Co., Ltd.
- 49. Kengo Sakurada, President and CEO, Sompo Japan Insurance Inc.
- 50. Martin Senn, CEO, Zurich Insurance Group
- 51. Chang-Jae Shin, Chairman and CEO, Kyobo Life Insurance Company Ltd.
- 52. Patrick Snowball, Group CEO, Suncorp
- 53. John Strangfeld, Chairman and CEO, Prudential Financial Inc.
- 54. Martin Strobel, Group CEO, Baloise Group
- 55. Shuzo Sumi, Chairman of the Board, Tokio Marine & Nichido Fire Insurance Co., Ltd.
- 56. John Tan, Group Chief Executive, ACR Capital Holdings Pte Ltd
- 57. Esteban Tejera Montalvo, First Executive Vice-Chairman, MAPFRE
- 58. Yoshinobu Tsutsui, President, Nippon Life Insurance Company
- 59. Willem van Duin, Chairman of the Executive Board, Achmea B.V.
- Nikolaus von Bomhard, Chairman of the Board Management, Munich Reinsurance Company
- 61. Ulrich Wallin, Chairman of the Executive Board, Hannover Re
- 62. Christopher J. B. Williams, Chief Executive Officer, HCC Insurance Holdings, Inc
- 63. Mike Wilkins, Managing Director and CEO, Insurance Australia Group Ltd.
- 64. Mark Wilson, CEO, Aviva plc
- 65. Greig Woodring, President and CEO, Reinsurance Group of America Inc.
- 66. Alexander Wynaendts, CEO and Chairman of the Executive Board, AEGON N.V.
- 67. Wu Yan, Chairman, The People's Insurance Company (Group) of China Ltd.
- 68. Eugenio Yurrita Goiburu, CEO, BBVA Seguros SA



There is a rising trend in weather-related economic losses and uninsured losses

Natural disaster losses worldwide (1980-2015)



- Economic risks are further exacerbated by climate change and development patterns.
- On average, insurance protection gap has been estimated to be around 70 per cent for weather-related hazards (~50% for developed and ~90% for developing nations)

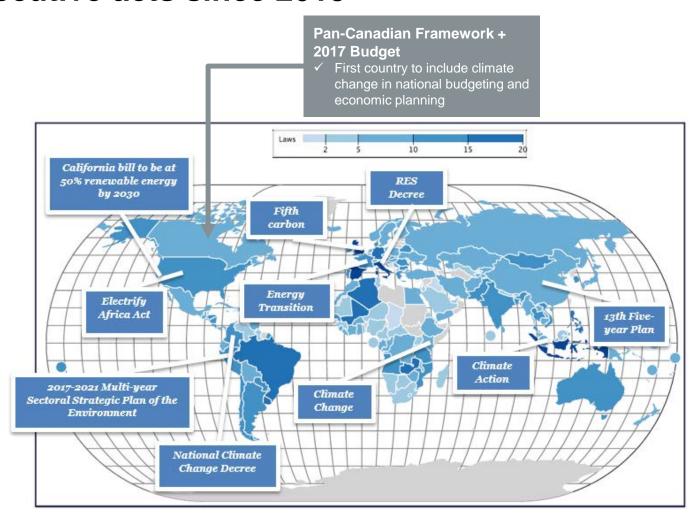


Since 2015, growing number of risk transfer initiatives, but scale and sustainability remain key issues!

1996	P	Fonden (Mexico)
1999	þ	Parametric concepts being explored for various applications
2000	þ	Turkish Catastrophe Insurance Pool (TCIP)
2001-03	þ	Taiwan Residential Earthquake; India's weather index; MAIPARK
2005	•	The Munich Climate Insurance Initiative (MCII) established
2007	þ	CCRIF; India's large-scale weather indexed crop insurance; PSNP in Ethiopia
2008	0	WBG Cat DDO; Weather Derivative in Malawi; PCRAFI; Romanian Cat Insurance Scheme; OASIS growing number of
2009-10	0	GIIF launched; Indonesia's flood micro insurance; Manizales, Colombia's Earthquake Property Insurance; HARITA pilot in Ethiopia; Kenya and Ethiopia: index-based livestock insurance.
2011	0	Mexico's indemnity-based excess of loss insurance for public assets; Vietnam's agriculture insurance pilot; India's Modified Area Yield Crop; MICRO established; Philippines' CLIMBS; ASEAN Roadmap DRFI
2012-13	0	Sendai dialogue on DRR launched; G20 adopt DRFI; PCRIP; JICA; SECURE; weather derivatives with Uruguay; Political Champion Group for Resilience insurance initiative established
2014	9	ARC sells first policies drought risk; Kenya crop and livestock insurance; South East Europe and Caucasus Catastrophe Risk Insurance Facility; PRISM
2015	0	Nicaragua joins CCRIF, Sendai Framework for Disaster Risk Reduction (2015–2030); G7 InsuResilience; APEC finance ministers CAP for DRFI; 2030 Agenda for Sustainable Development adopted; Climate Change Paris Agreement adopted; ARDIS
2016	ሷ	VisionFund's Asian Region Disaster Insurance Scheme' (ARDIS).

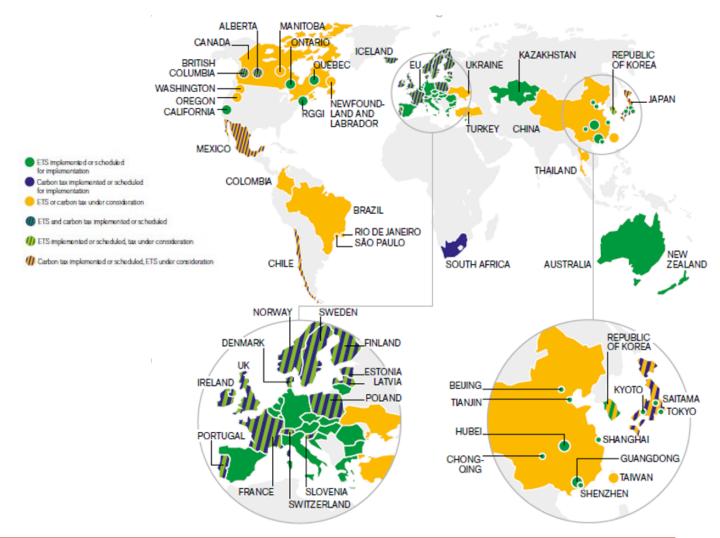


Highlights of climate change national planning, legislative and executive acts since 2015





Summary of existing, emerging and potential regional, national and subnational carbon pricing initiatives (ETS and tax) as of the end of 2016





Objectives



- Deliver insights for further harnessing market-based insurance to reduce the protection gap and support risk reduction and resilience agenda in developed and developing countries
- Explore role of insurance industry in transitioning to low carbon economy
- Facilitate and provide a platform for high-level industry-relevant dialogue with key stakeholders e.g., Ministries of finance, international development community, UN, Socio-economic groupings, etc.

(Co-)Chairs: D. Kessler, S. Sumi

EE+CR Working Group

(15 members)

Expert Task Teams have been established to support project implementation.

High-level dialogues:

- GA/OECD (Paris, Dec 2015)
- HLM-UN SG: UN HQ, NYC (March 2016)
- UN Climate Action Summit (May 2016)
- UN Heads of Government COP21 signatory meeting (April 2016)
- World Bank UR 2016 Critical Infrastructure (Venice, May 2016)
- EC DG Clima (Oct. 2016)
- UN Global Platform on DRR (Cancun, May 2017)

Source: GA



Four priority themes under two pillars (2016-2018 Work Plan)

Pillar 1:

Resilience to Extreme Events and Climate Risk

- 1. How Can Risk Modelling shape the Future of Extreme Event and Climate Risk Management? Innovation in Risk Transfer and Beyond (Forthcoming Sept 2017)
 - 2017 EE+CR Forum: (GA-SCOR Foundation Conference)
 "How will Risk Modelling Shape the Future of Risk Transfer?"
 (March 8-9 2017, Paris)

https://www.genevaassociation.org/events/2017/2017-extreme-event-and-climate-seminar

- 2. Pathways to more effective PPPs for expansion of sustainable risk transfer (May 2017 June 2018)
 - Case study of Australia, UK, Germany, Canada, and Japan flood risk management with focus on the interplay of preventive and risk transfer measures
- 3. Role of insurance industry in investing in and resilience of critical infrastructure (To be launched in 2018)
 - 2018 EE+CR Forum: "Pathways to Climate Resilient 21st Century Critical Infrastructure" (GA with Intact Financial) (7-8 March 2018, Canada

Pillar 2: Transitioning to Low Carbon Economy

- 4. Survey of Investments and Liability Approaches of the GA Members in Relation to Climate Change – Perspectives from the insurance industry (Forthcoming Nov. 2017)
 - Based on interviews with CIOs, CROs and Chief Underwriter of the global insurance industry



Source: GA



Pillar 1: Resilience to Extreme Events and Climate Risk

1) An Integrated Approach to Managing Extreme Events and Climate Risks (Sept 2016) - Towards a Concerted Public-Private Approach With recommendations to harness potential contributions of the insurance industry

Authors: M. Golnaraghi, S. Surminski, and K. U. Schanz

Link for the report: https://www.genevaassociation.org/media/952146/20160908_ecoben20_final.pdf

2) The "Global" Stakeholder Landscape in Extreme Events and Climate Risk Management (Jan 2017) - PPPs Authors: M. Golnaraghi and P. Khalil

Link for the report: https://www.genevaassociation.org/media/956576/stakeholder-landscape-in-eecr.pdf

3) Guidelines for Risk Assessment to Support Sovereign Risk Financing and Risk Transfer (GA/IDF joint publication) (A module of UNISDR National Guidelines) (June 2017)

Authors: M. Golnaraghi, I. Branagan, S. Fraser, J. Gascoigne, A. M. Gordon

Note: This document has been developed in response to a request from United Nations Office for Disaster Risk Reduction (UNISDR) as part of "Words into Action Guideline on National Disaster Risk Assessment: Governance System, Methodologies, and Use of Result".

4) How Can Risk Modelling Shape the Future of Extreme Events and Climate Risk Management? Innovation in Risk Transfer and Beyond (Forthcoming Sept 2017)

Engaging 22 leading experts in risk modelling as co-authors (from industry, risk modeling, science and technology and governments and addressed two key issues:

- (i) How can innovation in CAT risk modelling be transferred to the public
- (ii) Opportunities for innovating risk modelling using latest scientific and technological developments

2017 EE+CR Forum (Geneva Association-SCOR Foundation Conference): "How will Risk Modelling Shape the Future of Risk Transfer?" Hosted by SCOR (March 8-9 2017, Paris)

https://www.genevaassociation.org/events/2017/2017-extreme-event-and-climate-seminar

Publications of the EE and CR Program



5) Case Study: Comparative Analysis of Assessment of Flood Risk Management Programs: Australia, UK, Germany, Canada, and Japan (Launched in May 2017 – Forthcoming June 2018)

Based on extensive literature review, stakeholder analysis and interviews

6) Role of insurance industry in building climate resilience of critical infrastructure (To be launched in 2018)

Note: Research framework will be developed and presented to the GA Board in November 2017.

2018 EE+CR Forum: (Hosted by Intact Financials Corporation) "Pathways to Climate Resilient 21st Century Critical Infrastructure - A High-Level Multi-Stakeholder Dialogue with focus on the Role of (Re)Insurance Industry and PPPs" (March 7-8, 2018, Canada)

Pillar 2: Transitioning to Low Carbon Economy

1) COP 21 Paris Agreement: What Does it Mean for the (Re)insurance Sector? (Jan 2016)

Authors: Maryam Golnaraghi <u>with contributions from:</u> David Bresch, Peter Höppe, Karsten Löffler, Masaaki Nagamura, Ernst Rauch Link for the report: https://www.genevaassociation.org/media/942906/whatdoescop21meanforinsurance_complete_digital.pdf

2) Survey of Investment and Liability Approaches of the GA Members in relation to Transitioning to Climate Changes – Managing Climate Risks and Transitioning to Low Carbon Economy? (Forthcoming November 2017)

Industry perspectives from <u>asset and liability sides</u> of insurance business – (Based on interviews with CIOs, CROs and Chief Underwriter of the global insurance industry)