

Statement of purpose

Foreword

Over the past two years, Marsh McLennan has worked closely with UN Climate Change High-Level Champions, its Race to Resilience team, and the Arsht-Rock Resilience Center to spur awareness

Contents

1. Executive summary	1
2. Introduction	2

1. Executive summary

Over the past 50 years, the number of weather-related
X]gUghYfg\Ug'f]gYb' j Y!Zc`Xzk]h`W]a UH'WU Ub[Y`
[YbYfU`miUWVdhYX'hc`VY`U'df]a UfmXf]j YF"H`]gsf]gYž
coupled with an increase in the value of assets
and population movement to high-risk areas, has
fYgi`hYX`]b`U'g][b]`W]bh]bWYUgY`]b`cggYg"=bj Ygh]b[`
in adaptation and resilience is critical to combat these
rising costs and ensure that communities around the

2. Introduction

Human activities have led to a significant increase in greenhouse gas concentrations, which has far-reaching implications on communities and ecosystems globally.

The average global surface temperature has risen by approximately 1.1°C since the late 19th century, and the consequences are readily apparent for the increased frequency and intensity of natural disasters.² Human activities are a major driver of climate change, and it is essential to take action to reduce greenhouse gas emissions and mitigate the impacts of climate change.

The adaptation and resilience gap

ADAPTATION

Refers to adjustments in ecological, social, or economic systems in response to actual or expected climate change in processes, practices, and structures to moderate or reduce the damage associated with climate change.⁷

RESILIENCE

The capacity of social, economic, and environmental systems to cope with a hazardous event, trend, or disturbance, responding or reorganizing in ways that maintain their essential function, identity, and structure while also maintaining the capacity for adaptation, learning, and transformation.⁸

Increased investment in climate adaptation and resilience is an urgent priority. Demand for climate-resilient infrastructure is growing rapidly, with the need for investment in climate-resilient infrastructure increasing significantly. The World Economic Forum estimates that the world will need to invest around \$3 trillion a year in climate-resilient infrastructure over the coming decade.¹⁰ That

Purpose and summary of the report

This report supports the UN Race to Resilience by addressing how insurers can undertake the vital work of scaling climate adaptation and resilience initiatives. The report draws upon research and perspectives from experts across Marsh McLennan as well as the broader insurance industry. It builds on last year's report, "Fulfilling a Legacy of Societal Risk Management," published by Marsh McLennan, Champions, Adrienne Arsht Rockefeller Foundation, and Marsh McLennan.¹⁶

This year's report seeks to answer the following questions:

- What impact can the insurance industry have

Moral hazard hinders insurance uptake and risk mitigation. All traditional insurance schemes face a

term nature of climate change does not align with

4.

RECOMMENDATION 1

Prioritize resilience as a strategic imperative

COMMERCIAL BENEFIT OF THIS RECOMMENDATION

A U_]b[fYg]YbW U'ghfUHy[]Wdf]cf]hmYbUV`Yg]bgi fYfg`
to expand their business and increase revenues via

Exhibit 5: Insurer focus on adaptation and resilience as part of climate strategy³⁵

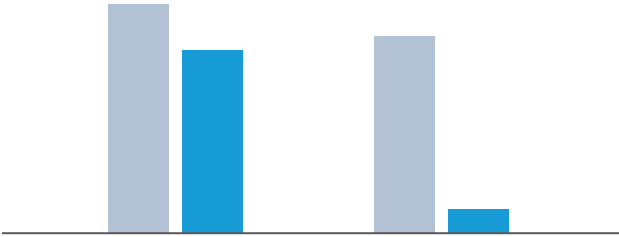


Exhibit 6: Example opportunities for insurers to increase resilience

	TYPE	EXAMPLE IMPLEMENTATION
 <p>Product Offerings</p>	<p>Parametric insurance Provides faster payouts to policyholders and enables quicker recovery</p>	<p>The African Risk Capacity (ARC) pools climate-related risk from partner countries, who pay premiums for parametric policies. 5Zhf Yj YbhgzVti bbf]Yg UbX gdYVY WgrU_Y\c`XYfg`_Y ZJfa Yfg` quickly receive payouts.³⁶</p>
	<p>Credit insurance Dfcj]XYg` bUbV\U`ghUV`]hmc` resilience-building projects</p>	

The insurance industry has an opportunity to rely on crop production, while incentivizing climate-smart agriculture to provide more resilience to farms. Insurers can tap into new products and distribution methods and work with private and public partners to increase coverage of agriculture. For instance, Blue Marble, a microinsurance provider, increased coverage of agriculture. For instance, Blue Marble, a microinsurance provider, increased coverage of agriculture. For instance, Blue Marble, a microinsurance provider, increased coverage of agriculture.

farmers through its partnership with Nespresso, coverage program for smallholder white-maize farmers in Mexico in partnership with the Insurance Development Forum, Mexico's Ministry of Finance, and state-owned re-insurer Agroasemex, covering against excessive rainfall, droughts, and other risks.



Nature-based solutions

Nature-based solutions (NBS) are investments that protect natural ecosystems and build resilience against climate change. Natural ecosystems such as coral reefs, mangroves, and salt marshes reduce the severity of climate disasters, capture greenhouse gases, and provide other ecosystem services. NBS can provide more than 30% of the climate mitigation needed to limit global warming to the 1.5°C target. NBS can provide more than 30% of the climate mitigation needed to limit global warming to the 1.5°C target. NBS can provide more than 30% of the climate mitigation needed to limit global warming to the 1.5°C target.

HARNESSING CO-BENEFITS OF INCREASING RESILIENCE AND SUPPORTING CARBON REMOVAL

In addition to direct investments in resilience, insurers can also indirectly encourage resilience through the voluntary carbon market (VCM). Carbon credits or credits represent one metric ton of carbon dioxide or another greenhouse gas that has been removed, reduced, or avoided. These credits can be used to offset emissions. The VCM is a market where carbon credits are bought and sold. The price of a carbon credit is determined by supply and demand. The VCM is a growing market, and it is expected to continue to grow in the future. The VCM is a key component of the carbon market, and it is essential for the success of the carbon market. The VCM is a market where carbon credits are bought and sold. The price of a carbon credit is determined by supply and demand. The VCM is a growing market, and it is expected to continue to grow in the future. The VCM is a key component of the carbon market, and it is essential for the success of the carbon market.

RECOMMENDATION 2

Design principles for public-private partnerships

Exhibit 8: Examples of how existing partnerships are designed across the above principles

Flood Re^{69, 70, 71, 72}

California Wildfire Fund
(CEA)^{73, 74, 75, 76}

Kenya Livestock Insurance
Program (KLIP)^{77, 78, 79}

DESIGN

RECOMMENDATION 3

Improve accuracy and availability of climate-related data and analytics

COMMERCIAL BENEFIT OF THIS RECOMMENDATION

Improving data and analyvON

the number of involved actors, privacy and security measures, and the necessary infrastructure and technical capabilities.

Standardization is also critical in integrating collected

RECOMMENDATION 4

Create an industry standard around “build back better”

COMMERCIAL BENEFIT OF THIS RECOMMENDATION

Ensuring that buildings are better able to withstand and recover from natural disasters and keeps risk at a level where insurance can remain available and insurers can remain active in markets, despite increasing disaster frequency.

“During the design and construction of buildings and infrastructure, these are only a handful of select examples — this theme is apparent and repeatable across disasters throughout the 2000s. Data has also shown that stronger buildings and costs from natural disasters. For example, 51% of homes built after 2008 survived undamaged after the most destructive in the state’s history. That compares with 18% of homes built pre-2008 under less-stringent building codes.”⁹⁸

An analysis by the World Bank suggests that if all countries were to adopt BBB practices over the next 20 years, global losses from disaster would be reduced by 12%, or \$65 billion a year. This reduction is most noticeable in some developing economies, where the resulting loss reduction could be significant.⁹⁹

“Build Back Better” (BBB) is a concept that focuses on three phases after a disaster to increase the resilience of nations and communities through integrating disaster risk reduction measures into the restoration of physical infrastructure and societal systems, and into the revitalization of livelihoods, economies, and the environment.” BBB’s goal is to enable communities to better manage future disaster risks by improving the reconstruction process — through ensuring new development is located outside of high-risk areas and requiring that buildings and infrastructure can withstand and recover from natural disasters. BBB has additionally been used to drive the use of more sustainable materials in the rebuilding process, embedding a resilience mindset and minimizing the carbon footprint of rebuilding.

Ensuring that buildings are better able to withstand and recover from natural disasters and keeps risk at a level where insurance can remain available and insurers can remain active in markets, despite increasing disaster frequency.

Ensuring that buildings are better able to withstand and recover from natural disasters and keeps risk at a level where insurance can remain available and insurers can remain active in markets, despite increasing disaster frequency.

Data has also shown that stronger buildings and costs from natural disasters. For example, 51% of homes built after 2008 survived undamaged after the most destructive in the state’s history. That compares with 18% of homes built pre-2008 under less-stringent building codes.⁹⁸

An analysis by the World Bank suggests that if all countries were to adopt BBB practices over the next 20 years, global losses from disaster would be reduced by 12%, or \$65 billion a year. This reduction is most noticeable in some developing economies, where the resulting loss reduction could be significant.⁹⁹

“Build Back Better” (BBB) is a concept that focuses on three phases after a disaster to increase the resilience of nations and communities through integrating disaster risk reduction measures into the restoration of physical infrastructure and societal systems, and into the revitalization of livelihoods, economies, and the environment.” BBB’s goal is to enable communities to better manage future disaster risks by improving the reconstruction process — through ensuring new development is located outside of high-risk areas and requiring that buildings and infrastructure can withstand and recover from natural disasters. BBB has additionally been used to drive the use of more sustainable materials in the rebuilding process, embedding a resilience mindset and minimizing the carbon footprint of rebuilding.

Obstacles to build back better

One major obstacle to building back better is the lack of public emphasis on resilient construction, and programs like FEMA and the NFIP in the United States tend to allocate the majority of funding towards post-disaster recovery rather than resilient construction. Insurers are typically not involved early enough in planning and reconstruction to meaningfully support BBB. Fully implementing BBB with their current policy is challenging. Insurers are typically not involved early enough in planning and reconstruction to meaningfully support BBB. Fully implementing BBB with their current policy is challenging.

BBB is particularly relevant to insurers given their Insurance Association recommends that, for recurring disasters to be avoided, "identical reconstruction after a natural disaster should not be the default."¹⁰² On this topic, BBB's execution remains siloed across the industry and lacks a consistent standard. This raises a further impediment to insurers adoption of BBB measures on an individual basis, namely that the severity of losses may not accrue to the sponsoring insurer. Because insurance is overwhelmingly a contract from BBB in the claims processes of one insurer are free to switch to another insurer at any time. This moral hazard is best addressed by a combination of industry-wide adoption of a BBB standard, and a better understanding of the reduced risk exposure.

Exhibit 10: How insurers can play a larger role in BBB

POTENTIAL ACTIONS FOR INSURERS	1	2	3
	Make changes to existing insurance policies and reinstatement clauses to support BBB	Provide premium reductions to incentivize policyholders to take risk mitigation measures, serving the dual benefit of reducing risk of loss for the insurance company and making insurance more affordable for the policyholder	Work with the public sector to provide funding to support structural improvements or relocation, potentially in exchange for reduced premiums

Example(s)

- Insurers can remove the "same location" clause in the reinsurance agreement.

RECOMMENDATION 5

Advocate for public policies and

Practically, there are several ways that insurers can use their expertise to advocate for change:

1. **Expand one-on-one relationships with communities where insurers are already providing coverage.**

An example of this type of partnership exists in South Africa between Santam, South Africa's largest insurer, and a municipality along the Vaal River. As a result of increasing losses, Santam began sharing data and risk assessments with the municipality to support its resilience in the area. In return, the municipality provides information on the area's risk profile.

Regulators need to protect and act on behalf of policyholder interests. However, there are

5. Roadmap for success

The recommendations detailed in this report outline opportunities for insurers to contribute to reducing the impact of increasing weather-related disasters, expand global insurance coverage, and ultimately improve economic outcomes. This is a commercial imperative for the industry as climate-related risks continue to grow and threaten global businesses and communities. Insurers should determine how these recommendations can be leveraged to best suit their priorities and goals, taking into consideration their key geographies, risk exposure, size, and capabilities. While the implementation of the recommendations varies, insurers must all take steps to align their business with adaptation and resilience and address growing climate risks.

While individual insurers should establish targets for

Supplement

Ongoing adaptation and resilience insurance initiatives

Support for climate adaptation and resilience in the insurance industry is already well underway.

The UN High-Level Champions-Adrienne Arsht Rockefeller-Marsh McLennan joint-report published

‘UghinYUf’Uh7CD&+ž : i ` ``]b[‘U’@Y[UWricZGcVWYHU’F]g_’

A UbU[Ya Ybhž ` \] [\ hYX`%+]bbcj Uhj Y’]bgi fUbW’

initiatives that were advancing climate adaptation and/or risk reduction. Over the last year, many of those initiatives have made successful progress, and many more initiatives have begun. The following case studies showcase ongoing initiatives that are working to tackle the existing resilience gap, sers t&ib-8.2atnd eale t&ib-8munckn (e e)-18.9 -6.5 (n)-8556 T21.8(n)-11.8f

Anticipatory action and disaster risk reduction initiative

Climate resiliency challenge

**Combining Preparedness and
Response Financing in one**

**Combining early warnings
and anticipatory finance to
protect livelihoods**

Extreme cold and drought cover for

Global insurance supervisory focus on climate risk reduction

In early November, the International Association of Insurance Supervisors (IAIS) released a white paper outlining various actions the industry's regulatory bodies could take to reduce climate-related protection gaps. Titled "A Call to Action: The Role of Insurance Supervisors in Addressing Natural Catastrophe Protection Gaps," the report states that the most effective supervisory action can best contribute to addressing protection gaps by: (1) assessing insurance protection gaps; (2) increasing public awareness of climate risk awareness; (3) incentivizing risk prevention and reduction of insured losses; (4) creating an enabling regulatory and supervisory environment to support availability of insurance and uptake of coverage; and (5) advising government and industry on the design and implementation of public-private partnerships or insurance schemes.

The report also highlighted the importance of multi-stakeholder engagement, and suggested quite strongly that reducing protection gaps are proper activities for insurance supervisors to do. It suggests that supervisors should focus on this by engaging policymakers, industry leaders and other key stakeholders such as the Organization for Economic Cooperation and Development, the World Bank, and the United Nations Development Forum.

KEY CONTACT:

Conor Donaldson

International Association of Insurance Supervisors

Innsure corps

The climate-focused InsurTech incubator InnSure launched a new insurance sector professional development network that aims to organize, train, and support technical assistance providers in at-risk/in-need communities. The program, called InnSure Corps, was launched during Climate Week NYC, and within a month had chapters established in eight communities including New York, San Francisco, Boston, and Bermuda.

When fully implemented, the InnSure Corps will receive specialized training in the various roles the insurance sector can play in advancing climate

Milwaukee river risk and resilience initiative

The Milwaukee River Risk and Resilience Initiative (M3RI) is a public-private partnership that seeks to utilize the insurance mechanism to capture and scale nature-based projects across the Milwaukee River watershed. The Metropolitan Milwaukee Sewerage District (MMSD) is a long-time leader in deploying nature-based management challenges. Recently, they entered into a larger-scale program with Ducks Unlimited (DU) to restore 4,000 acres of wetlands and plant six million trees to reforest the Milwaukee River watershed.

MMSD is working with MMSD and DU to reconcile their modeling of the hydrological impacts of the new vegetation with more traditional insurance catastrophe risk modeling by working with leading (re)insurance companies to structure a parametric-based community-level insurance program that will help fund nature-based projects. MMSD is working with MMSD and DU to reconcile their modeling of the hydrological impacts of the new vegetation with more traditional insurance catastrophe risk modeling by working with leading (re)insurance companies to structure a parametric-based community-level insurance program that will help fund nature-based projects.

The M3RI continues to seek funding partners for projects including farmers, shippers, and railroad companies throughout the watershed. The anticipated implementation in 2024.

KEY CONTACTS:

Kevin Shafer
MMSD

Kellis Moss
Ducks Unlimited

Francis Bouchard
Marsh McLennan

Neighborhood heat protection concept

Extreme heat as one of the deadliest forms of climate related risks. In one 10-day heatwave in 2022, the state's public health agency estimated that nearly

New Zealand natural hazards portal

8i Y'hc]hg'YI dcgYX`cWWh]cb]b'h\Y'DUVY WC WUubž
BYk sNYU'UbX']g'gi V'YVWhc 'U'fUb[Y'cZbUhi fU`\ UnUfXgž
including earthquakes, landslides, volcanic activity,
hgi bUa]g'UbX' ccX]b["Hc 'UXXfYgg'h\YgY' [fck]b['
exposures, Toka Tu Ake EQC, a New Zealand Crown
entity that provides natural hazard research,
education and insurance, has established a Natural
Hazards Portal to help communities and people
understand their exposures and their choices.
Capabilities on the portal include granular details on
hazard exposures, tools for conducting personalinóro

Senegal Public Solidarity Fund (FSN)

Senegal's Fonds de Solidarite Nationale (FSN) aims to provide timely emergency relief response to dcdi `Uh]cbg`U` YWVX`VmV]a UH`UbX`X]gUghYf`g\cW`g` in Senegal. Their public-private partnership with ; U`U[\`Yf`FY`g`Di`V`]WGYVWcf`/`7`]a UH`FYg`]YbW` Solutions practice focuses on leveraging the role of H`Y`df]j`UH`gYVWcf`]b`h`Y]f` bUbV]U`dfYdUfYXbYgg` UbXsfYg`]YbW` strategy.

The work — which started in 2022 — adopts a holistic approach to climate adaptation and fYg`]YbW`"6msUbh]VdUh]b[`Z`h`fYz\`][`\`mX]gfi`dhj`Y` W` U`U` [Yf` [`_gW`]g

**Talent secondment program
supports cities' adaptation efforts**

The Sustainable Markets Initiative (SMI), Howden,
and the Resilient Cities Network have established
a program to support cities' adaptation efforts

UNCDF partners with Howden to build climate resilience for vulnerable communities in Fiji

Insurance broker Howden partnered with UNCDF's

ZestyAI-SBP CDRZ pilot

In an exercise intended to illustrate the power of the recently enacted Community Disaster Resilience Zone (CDRZ) legislation in the United States, ZestyAI analytic solutions — teamed up with the national replicating CDRZ's big data, risk reduction analysis, and community level funding focus. It started with a three-day hackathon where ZestyAI employees integrated the government's risk and social equity datasets to identify the three US communities most its machine learning capabilities to identify and price SBP then successfully pursued a \$100,000 grant award from the Climate Resilience Challenge that will now be used to implement ZestyAI's recommendations.

KEY CONTACTS:

Nick Allain

Head of Marketing, ZestyAI

Liz McCartney

7\YZCdYfUHj[b[C WfzSBP

Community Disaster Resilience Zones (CDRZ)

Last year, CDRZ was included in the Race to Resilience report as an example of a public policy initiative being promoted by the reinsurance sector as a means of addressing both social equity and climate risks. Since last COP, the US Congress enacted CDRZ by overwhelmingly large majorities, and the Federal Emergency Management Agency (FEMA) designated nearly 500 US communities as CDRZ zones, thereby increasing federal funding options, providing access to technical assistance capabilities, and prioritizing CDRZ communities for various federal programs.

The insurance sector is now pursuing two primary

Global actuarial initiative expands

Meso-level approaches to climate risks in Ghana

Allianz Re utilized much of the same data and analytics to develop a bespoke insurance program for publicly held assets that included a 20% rapid payment component that would cover response costs for the events.

KEY CONTACT:
Daniel Stadtmueller
d.stadtmueller@allianz.com

Smallholder farmers in Mexico

Last year's report featured a Tripartite partnership program focused on smallholder farmers in Mexico. The program covers over 10,000 farmers against crop loss. The parametric cover was triggered twice during the pilot phase, providing over 1,400 farmers with payments to compensate for lost income and enhance community resilience. The program was considered so successful that the Mexican government is expanding it to cover more farmers.

Urban Infrastructure Insurance Facility (UIIF)

Last year's report featured the launch of Urban Infrastructure Insurance Facility (UIIF), a multi-city pooling concept that aims to facilitate access to capital markets for Sustainable Infrastructure (SUSINF) projects. In partnership with the International Council for Clean Energy (ICCLEI), the program has now selected and on-boarded its 10th participating city, the City of London. The program is designed to provide insurance coverage for climate risks.

The program's goals are to form a diverse risk pool of infrastructure assets and vulnerable people and deploy at least 100M Euro

Acknowledgements

Authors

Francis Bouchard
Managing Director, Climate
Marsh McLennan

Anthony Bice
Partner, Insurance & Asset Management
Oliver Wyman

Rob Bailey
Partner, Insurance & Asset Management
Oliver Wyman

Alex Wittenberg
Partner, Insurance & Asset Management
Oliver Wyman

Roland Lasius
Partner, Insurance & Asset Management
Oliver Wyman

Elizabeth Shohf
Associate, Insurance & Asset Management
Oliver Wyman

Contributors

Bailey Kroop, Oliver Wyman

Natalie Festa, Oliver Wyman

Andrew Bailey, Oliver Wyman

Swenja Surminski, Marsh McLennan

Daniel Kaniewski, Marsh McLennan

Amy Barnes, Marsh

Robert Reader, ; i mCarpenter

Bridget Carle, ; i mCarpenter

Josh Darr, ; i mCarpenter

Mark Hope, ; i mCarpenter

We would also like to thank the experts across the insurance industry who spoke with us and provided valuable insights for this report.

Endnotes

- 1 Oliver Wyman analysis based on sigma %&\$&'. B Uhi fU' WlH Ugrfc d \Yg' UbX']b U h]cb']b' &\$&.&. U' dYfZY Wngfc:fa žGk]gg FY' -bgh]hi hY/Uggi a]b['Ub]bXi g]fmlUj YfU[Y' cZ* \$i' "cgg' fU]c/ 'cggYg' UX† ghYX' hc' 2022
- 2 -D77žSixth Assessment Synthesis Reportž2023
- 3 I B 9DžNations Must Go Further than Current Paris Pledges or Face Global Warming of 2.5-2.9°Cž2023
- 4 Data extracted from: Our World in Dataž2023
- 5 I GGi VVt a a]hY' cb' < ci g]b['UbX' -bgi fUbW' A Ya cfUbXi a žFactors In uencing the High Cost of Insurance for Consumersž2023
- 6 Data extracted from: Our World in Dataž2023
- 7 I B: 777žAdaptation and Resiliencežn.d.
- 8 I B: 777' 7']a UH' 7\Ua d]cbgžSharm El Sheikh Adaptation Agenda, 2022
- 9 I B 9DžAdaptation Gap Report 2023ž2023
- 10 HU' ž5fUa YžYhU"žEnabling Private Investment in Climate Adaptation and Resiliencež2021
- 11 I B: 777' 7']a UH' 7\Ua d]cbgžSharm El Sheikh Adaptation Agendaž2022
- 12 Gk YYbYnž? mYžYhU"žThe Challenge of Financial Recovery From Disastersž2022
- 13 Fci gcj ž@]bXU: "žYhU"žClimate Change, Catastrophes and r Cat2ndnc(.9 (r)5.3 (op)-2.4 (h)-1 (e)3.4 (s)15 (a)4.3 (nd)15 (r Ca)8 (t)1.8 .4Cž20.76)6.7 (o15 1_0 eualT(s)-21.6 (io)

- 44 9j UbqzGHj YzNew York MTA To Renews MetroCat Re Parametric Cat Bond. Launches \$100m Deal, 2020
- 45 I B8FFZSendai Framework for Disaster Risk Reduction 2015-2030z2015
- 46 5g]Ub 8Yj Y'c da Ybh6Ub_žADB Partners With Global Insurers to Mobilize \$1 Billion in Lending Capacity to Financial Institutionsz2022
- 47 = 7žIFC Mobilizes \$3.5 Billion from Leading Global Insurers to Expand Development Financez2023
- 48 9j UbqzGHj YzNew York MTA To Renews MetroCat Re Parametric Cat Bond. Launches \$100m Dealz2020
- 49 Ga]\n.ž=Ub`UbX`?YbnU`6fnUbžInsurer Body Plans Infrastructure Fund for Climate-Hit Economiesz2023
- 50 K c'X`6Ub_8UHžEmployment in Agriculture (% of Total Employment) (Modeled ILO Estimate)z2021
- 51 L]b[ž@] UbX`F ccdU`]5[[Ufk U`žCrop Insurance: O ering A Way to Support Food Securityz2023
- 52 GU`XUf`U!Nc ff)`UžGYf[]cžSocioeconomic Vulnerability to Natural Disasters in Mexico: Rural Poor, Trade and Public Responsez2007
- 53 6`i`Y`A`UFV`YžSupporting Nespresso Build Climate Adaptation For Their End Suppliersžn.d.
- 54 A i [\Už6]UžCrop Insurance For Co ee Smallholdersžn.d.
- 55 Gk]ggFYžSustainability Reportz2023
- 56 K c'X`6Ub_žWhat You Need to Know About Nature-Based Solutions to Climate Changez2022
- 57 GWtH]žJYfcb]WUžDesigning a New Type of Insurance to Protect Coral Reefs, Economies, and the Planetz2022
- 58 7U]žcfb]U8YdUf fa Ybhcz=bgj fUbVW`7`ja UH`=bgj fUbVW`K cf_]b[]; fci džProtecting Communities, Preserving Nature and Building Resiliency: How First-of-its-Kind Climate Insurance Will Help Combat the Costs of Wild res, Extreme Heat, and Floodsz2021
- 59 A i b]W`FY`UbX`H`Y`B`U`i`fY`7cbgYfj`UbWž

- 94 H fbYfz>Ygg]WžClimate Change Physical Risk in Catastrophe Modelingž2023
- 95 Gk]gg FY' -bgh]h hYžSigma Report: Natural Catastrophes and In ation in 2022: A Perfect Stormž2023
- 96 < U:Y[HbYžGNY. @\ UpYžYhU:žBuildin 2023

References

1. 5Z]VUbf F]g_7UdUWmFf&\$&' E"-bHY[fUHYX'5bbi U'FYdcfh&\$&%"5VVYggYX'Zfca . <https://www.arc.int/sites/default/files/2023-10/ARC-IAR-2021.pdf>
2. 5a k]bg"fb"X"E"9Ufh\ei U_Y DUFUa Yhf]W-bgi fUbWY. G\U_Y UbX DUñ9I Wl gj] Y'9Ufh\ei U_Y DUFUa Yhf]WD'UhZcfa '6f]b[gE i]W_E i chYgfc'5Wwci bhg' cZ5"GjhYg"5VVYggYX'Zfca . <https://www.amwins.com/products/earthquake-parametric-insurance-amwins>
3. 5bXYfgcbzGUfU"9ZHYffm@'5bXYfgcbz5]W'7"<]ZA UH\Yk '9"?U\.bž<ck UfX' ?i bfYi H\Yfz: Ufm8 @]YYWdž<Uf]A UbHf]dfU[UXUžD]YffY' A ÁfY'ž5bXfYk 'D'UbHjB[UžUbX'J"?YffmGa]h"r&\$% E'H\Y'7f]h]W'Fc Y'cZA Uf_Yhg]b'7]ja UHY'7\Ub[Y'5XUdHUh]cb"B UH]cbU'6i fYUi 'cZ9Wt.bca]W FYgYUFVX"K cf_]b['DUdYf'GYf]YgžBc"&(*) "5VVYggYX'Zfca . <http://>

31. fUbw'8Yj Y'cda Ybh: cfi a 'F]g_A cXY''b['GhYf]b[; fci d''f&\$&' E'GfUHy[m&\$&' 'l dXUHy.'Di V']Wdfj] UHy'7c''UVcfUj]cb' b'F]g_'5bU'mh]Vg]Hc' 7'cgY'HY'DfchYW]cb; Ud''fUbw'8Yj Y'cda Ybh: cfi a "5VWYggYX Z'ca . https://www.insdevforum.org/wp-content/uploads/2023/03/RMSG-Strategy_2023-2.pdf

32. [https://](#)

58. Ga]hž=Ub'UbX?YbnU'6fntub" f&\$% 'E' -bgi fYf'6cXmD'Ubg-bZUghfi Wfi FY: i bX'Zcf'7]a UhY! <]h9Wt bca]Yg":]bUbW]U' Times.
 Accessed from: <https://www.ft.com/content/c9e22cd4-22a7-4916-9e02-4facd31670e2>
59. Gi fa]bg_]žGk Yb'U" f&\$%+E'K \Uh7Ub h\Y1 b]hYX GhUHyg @YUfb Zfca h\Y1 b]hYX?)b[Xca gBYk : 'ccX'FY]bgi fUbW'Dcc'3'FYgci fWgZcf'h\Y'
 : i hi fYzDc]Wm6f]YZ%+!\$&"5WVYggYX Zfca . https://media.r .org/documents/RFF-PB-17-02_1.pdf
60. Gi fa]bg_]žGk Yb'U" f&\$% 'E':]hZcf'Di fdcgY'UbX':]hZcf'h\Y: i hi fY35b'9j Ui Uhjcb'cZ'h\Y1 ? gBYk : 'ccX'FY]bgi fUbW'Dcc'"F]g_A UbU[Ya YbhUbX'
 -bgi fUbW'FYj]Yk ž&%ž' ' !+&"5WVYggYX Zfca . <https://doi.org/10.1111/rmir.12093>
61. Gi fa]bg_]žGk Yb'Uz-cbUh\Ub '6UfbYgžUbX?Uh\Uf]bY'J]bWb'h" f&\$% 'E' -bgi fUbW'5g'U'7UHJ'mghZcf: c] Yfba Ybh7]a UhY'D'Ubb]b[35: fUa Yk cf_'Zcf'
 a X Q _ ä Q b[S A f b 2

a

Marsh McLennan fB MG9. A A 7E]g'h Y'k cf`X g`YUX]b[`dfcZYgg]cbU`gYfj]W'g: fa `]b`h Y`UfYUg`cZf]g_zgfUHf[mUbx`
people. The Company's 86,000 colleagues advise clients in 130 countries. With annual revenue of over \$20 billion,
Marsh McLenn24.9 (s)-1.5 (e (l)-8.9 (l)-9.8 (i)-9.9 (e)-14.1 (n)-14.7(t)-3-10.1 (n)-.12 (d)-28.4 (v)-28.4 a)-14.4 (u)-8.(T)t.5 (l r)- giue cl reQIL