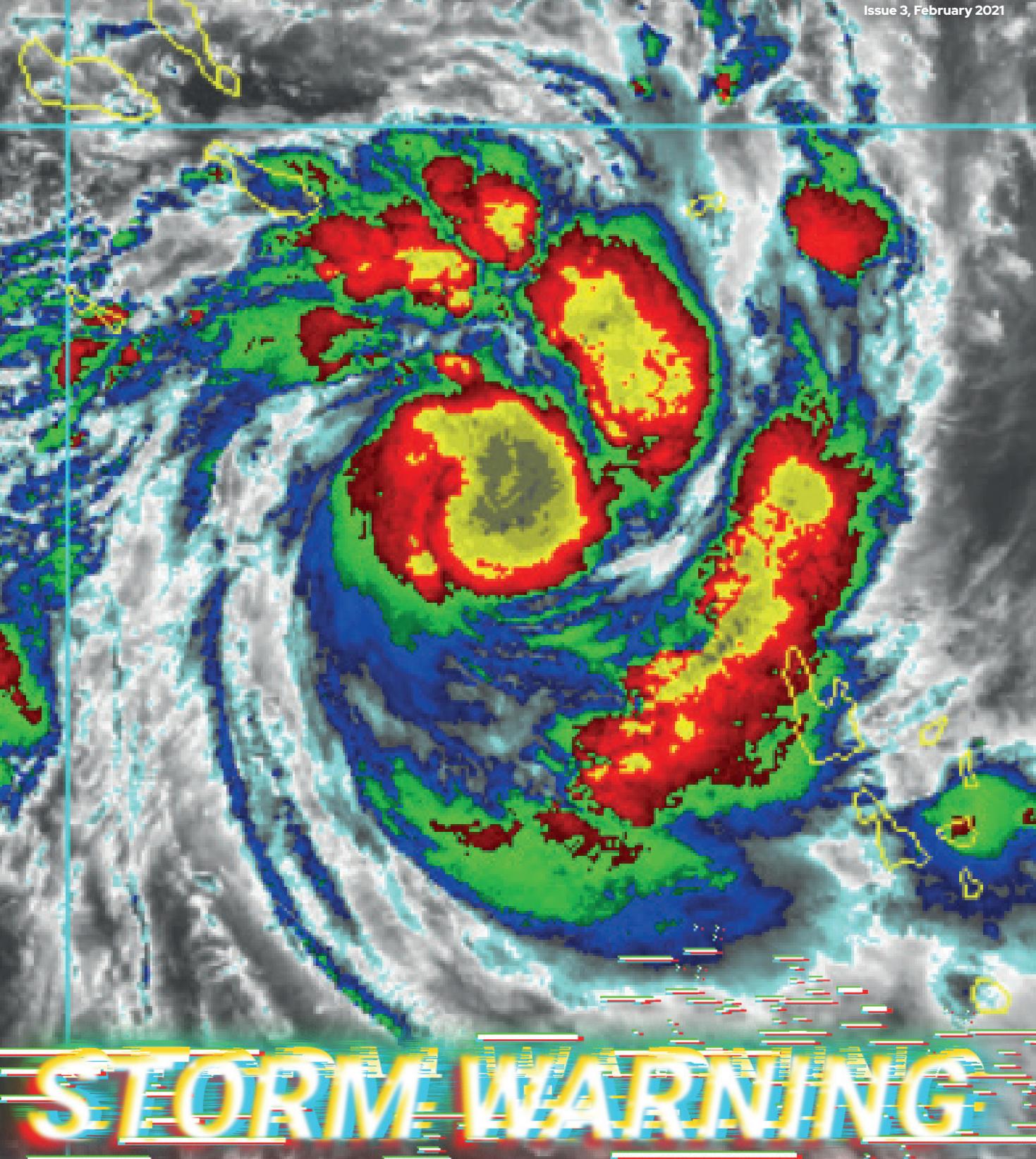


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JOURNAL

Issue 3, February 2021



STORM WARNING

Managing disaster risks with finance

JOURNAL

Issue 3, February 2021



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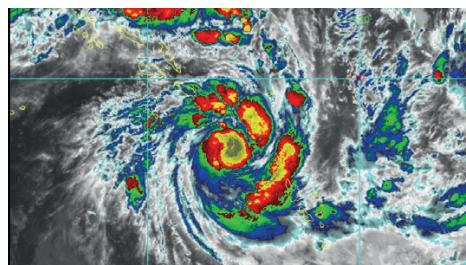
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There's no going back

Innovative insurance products, developments in data availability and risk management solutions are helping governments, corporates and the financial sector assess and quantify catastrophe risks, writes Danae Kyriakopoulou, Chief Economist and Director of Research, OMFIF.

NATURAL disasters are increasing in frequency, intensity and associated costs. For governments, they represent an important fiscal risk. The unexpected use of public funds and associated budget volatility can damage sovereign bond ratings and impact access to finance at a time when it is most needed.

Developing countries are being hit the hardest. Between 2000-19, 43% of all natural disasters occurred in low-to middle-income economies. There is also growing evidence of the relationship between poverty and disasters.

For financial regulators, these so called 'physical risks' can develop into systemic financial stability risks. They can disrupt trade and economic activity and destroy infrastructure and real estate assets in investors' portfolios.

Disaster aid and relief programmes can form part of the solution but are not adequate to meet this growing challenge or always reliable. In response, institutions are developing more sophisticated strategies for the financial management of disaster risks.

Unlike traditional assets, disaster risk finance cannot and does not offer steady 'returns' on investment. They function more like insurance. Catastrophe bonds are one such example of insurance-linked securities, transferring risks to investors with attractive rates of return. Having emerged in the mid-1990s, they are still a small but fast-growing market. In 2020, cat bond issuance reached \$16.4bn.

Targeted frameworks are being developed all over the world, from the Arab countries (page 16) to Asia (page 12) and the South Pacific (page 15). Developments in data availability and solutions are also helping with the assessment and quantification of risks (page 14).

Such initiatives are welcome and much needed. But they should be seen as complementary to, not substitutes for, the efforts to manage factors contributing to the increased frequency of disasters and other physical risks. This includes rethinking our economic models and setting on the path to sustainable growth before we face irreversible tipping points. •



'Between 2000-19, 43% of all natural disasters occurred in low-to middle-income economies.'

Key decisions by central banks on sustainability, December 2020 – February 2021

[The Monetary Authority of Singapore issued finalised guidelines for financial institutions in managing their environmental risks.](#)

These guidelines set out the central bank's expectations on environmental risk, covering governance and strategy, risk management and disclosure of environmental risk information.



[Hong Kong sets new climate disclosure rules, in line with the standards set by the Task Force on Climate-related Financial Disclosures.](#)

Under the new proposal driven by the Hong Kong Monetary Authority, Securities and Futures Commission and the government, companies will have to share information aligned with TCFD regarding principles to inform investors of climate-related financial risks.

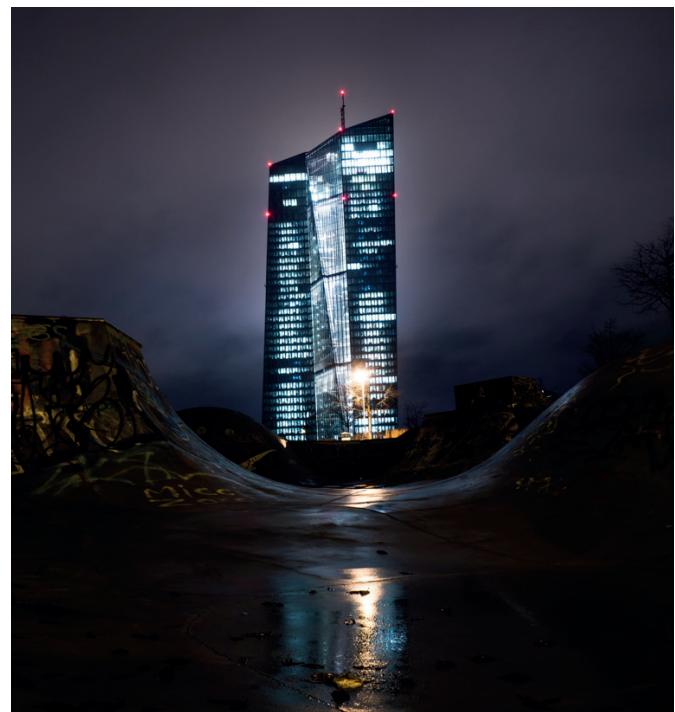


[The European Central Bank sets up a climate change centre to bring together work on climate issues](#) in different parts of the bank.

The new climate change centre consists of ten staff from across different teams in the ECB. This team will shape and steer the ECB's climate agenda, supported by data and climate change experts.

[The ECB has planned to invest in the Bank for International Settlements' green bond fund.](#)

The ECB will invest in the euro-denominated green bond investment fund for central banks. This move is aligned with the ECB's sustainable and responsible investment strategy to increase its share of green securities. Additionally, the ECB is considering expanding its use of low carbon benchmark indices within its pension fund.



Selected central bankers' speeches on sustainability

18 Dec: [Lael Brainard, a Federal Reserve governor, on strengthening the financial system to meet the challenge of climate change](#)

15 Dec: [Tiff Macklem, Governor of the Bank of Canada, on trading for a sustainable recovery](#)

12 Dec: [Frank Elderson, Executive Director of Supervision of De Nederlandsche Bank, on climate finance](#)

9 Dec: [Yi Gang, Governor of the People's Bank of China, on supporting low carbon development with green finance](#)

8 Dec: [Ravi Menon, Managing Director, Monetary Authority of Singapore, on fintech for an inclusive society and a sustainable planet](#)

3 Dec: [Margarita Delgado, Deputy Governor of the Bank of Spain, on the role of the financial sphere in accelerating decarbonisation](#)

Further reading

Selected reports on climate change and sustainable finance, December 2020-January 2021

Jan: [COP26 Presidency: Priorities for public climate finance in the year ahead](#)

The paper highlights the main issues related to public climate finance and sets out the next steps for the international community to address.

Dec: [Network for Greening the Financial System: Survey on monetary policy operations and climate change: key lessons for further analyses](#)

This report examines how prepared central banks are to take into account climate-related risk in their monetary policy operations.

Dec: [ShareAction: Voting Matters 2020 – Are asset managers using proxy voting for action on climate and social issues?](#)

The report examines how 60 of the world's largest asset managers have voted on shareholder resolutions on climate change and social issues.

Dec: [WWF, World Bank Group: Spatial Finance: Challenges and opportunities in a changing world](#)

This paper outlines the possibility of a taxonomy and hierarchy for spatial finance, and how technology, approaches and data can be considered within a single framework.

Dec: [The Finance Innovation Lab: Lifting the Lid on Fintech](#)

The report looks into how fintech is transforming finance and the relationship between sustainability, justice and resilience.

Dec: [Climate Policy Initiative: Paris misaligned?](#)

An assessment of the Paris agreement and net-zero emission targets.

Dec: [Carbon Tracker Initiative: Groundhog pay: How executive incentives trap companies in a loop of fossil growth](#)

This focuses on the remuneration policies of several oil and gas companies and how the executives are steering their companies in a sustainable direction.

Dec: [NGFS: Progress report on the implementation of sustainable and responsible investment practices in central banks' portfolio management](#)

A look into the progress and the steps central banks have taken over the last year as well as what is needed to speed up the transition toward a carbon-neutral economy.

Dec: [United Nations Global Compact: A principles-based approach to the SDGs – Why it matters for business](#)

The paper explores the question of why and how human rights due diligence needs to be an integral part of principles-based approach to the SDGs by businesses.

Dec: [Organisation for Economic Co-operation and Development: Blended finance in the least developed countries 2020: Supporting a resilient Covid-19 recovery](#)

This report provides an update on the deployment of blended finance in LDCs, analysing the potential role in helping LDCs to recover from the pandemic and moving towards unlocking capital for the achievement of the SDGs.

Key disaster-risk financing developments in 2020

The global health crisis has highlighted the importance of strengthening disaster risk governance and climate risk supervision. Throughout the year, central bankers have spoken about the importance of managing risks as well as updates on potential collaborations for catastrophe bonds and programmes to strengthen the resilience of vulnerable communities.

Reports on disaster risk management also underline similar sentiments. Reports from the International Monetary Fund, United Nations and Asian Development Bank provide guidelines to improve disaster resilience, infrastructure design and disaster insurance.

CENTRAL BANKERS' SPEECHES ON DISASTER RISK MANAGEMENT, 2020

2 Dec: [Ariff Ali, Governor of the Reserve Bank of Fiji, on the launch of the Pacific Insurance and Climate Adaptation Programme](#)

23 Nov: [Ravi Menon, Managing Director of the Monetary Authority of Singapore, on powering the next stage of Singapore fintech](#)

4 Mar: [Kevin Stiroh, Executive Vice President of the Federal Reserve Bank of New York and head of the Supervision Group, on climate change and risk management in bank supervision](#)

16 Jan: [John Rolle, Governor of the Central Bank of the Bahamas, on a financial sector disaster recovery plan for the Bahamas](#)

SELECTED REPORTS ON DISASTER-RISK FINANCING, 2020

Jan 2021: [International Monetary Fund: Natural disaster insurance for sovereigns: Issues, challenges, and optimality](#)

Dec: [UN Office for Disaster Risk Reduction: Gender and disaster risk reduction and response in the context of Covid-19: The Asia-Pacific Region](#)

Oct: [World Bank Group: Resilient water infrastructure design brief](#)

Oct: [Asian Development Bank: Accelerating climate and disaster resilience and low-carbon development through the Covid-19 recovery: technical note](#)

Jul: [Aon: Global catastrophe recap: First half of 2020](#)

Jun: [ADB: Assessing the enabling environment for disaster risk financing: A country diagnostics toolkit](#)

Mar: [ADB Institute: Building the future of quality infrastructure](#)

Mar: [UN: Shared responsibility, global solidarity: Responding to the socio-economic impacts of Covid-19](#)

OMFIF's latest sustainable finance activity

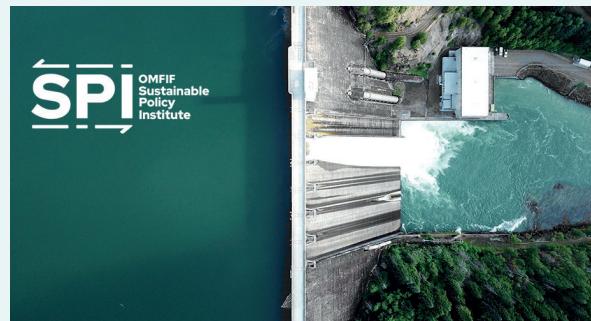
Meetings

[10 Dec: Agritech investment boom](#)



Sunny George Verghese, co-founder and group chief executive officer at Olam International Limited, and Dina Umali-Deininger, agriculture practice manager, sustainable development at the World Bank, at the Singapore Fintech Festival, look at how new technologies are aiding the Covid-19 recovery and establishing sustainable agriculture practices.

[10 Dec: Renewable energy as an asset class](#)



Speakers including Marc Dufour, energy specialist at the European Investment Bank; Aayush Tandon, policy analyst, green finance and investment at the Organisation of Economic Co-operation and Development; Carlos Zuloaga, managing director and global head of energy at Banco Bilbao Vizcaya Argentaria, discuss investment trends, clean energy commitments and technology innovation.

Commentaries

Commentaries from December and January tackle multiple issues, from biodiversity loss in a conversation with Frank Elderson to active ownership and diversity strategies for 2021.

[11 Jan: Simon Buckle and Edward Perry: Time to align finance with biodiversity objectives](#)

[8 Jan: Hani Kablawi: Outlook 2021: Making diversity count](#)

[9 Dec: Danae Kyriakopoulou: Central banks go beyond climate](#)

[3 Dec: Danae Kyriakopoulou: Brown is the new green](#)

[1 Dec: Danae Kyriakopolou: Preserving ECB independence](#)

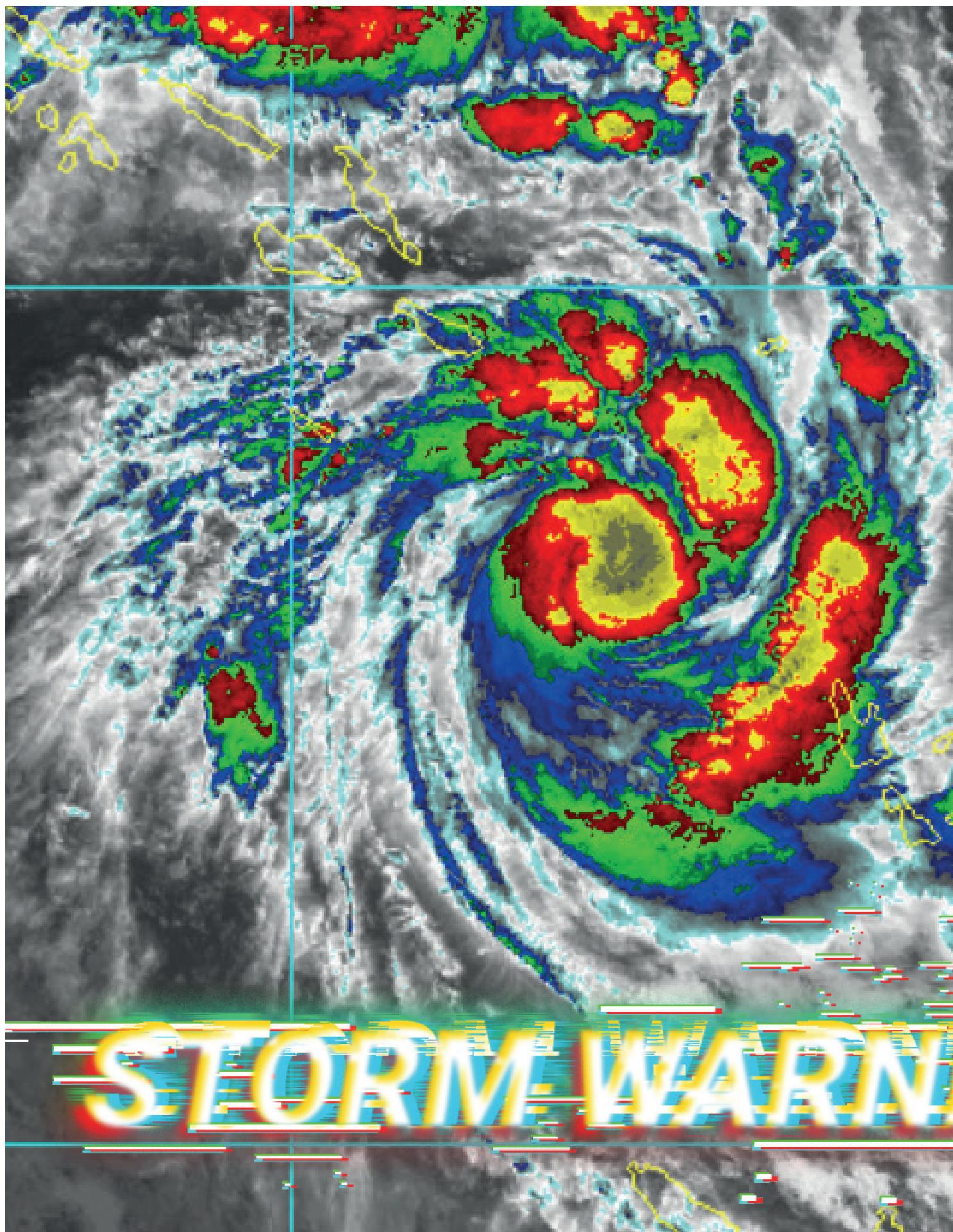
Podcasts

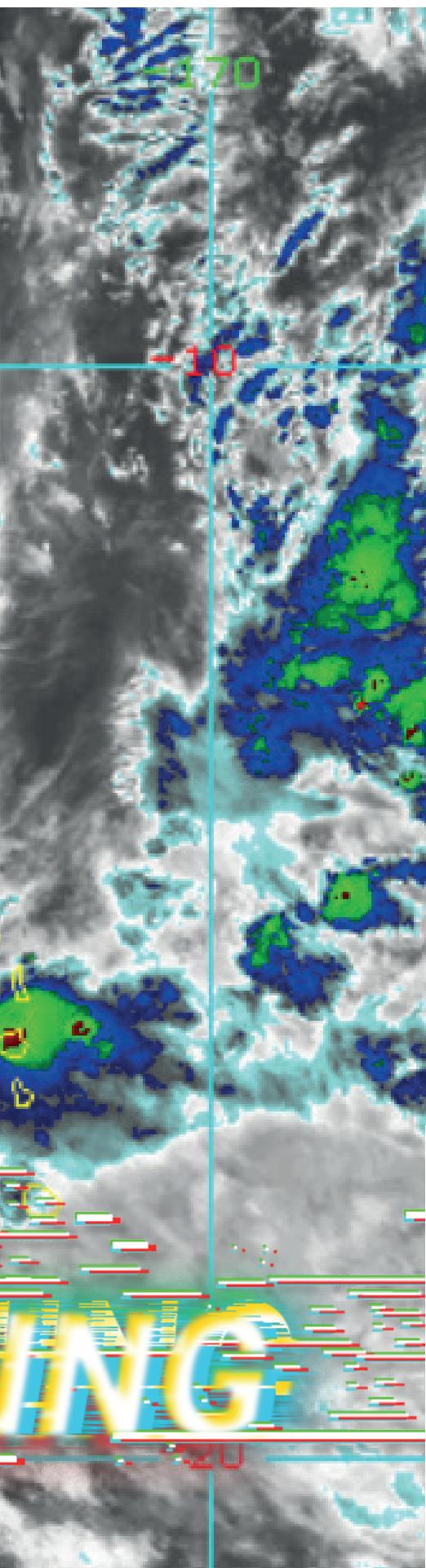
[17 Dec: Renewable energy as an asset class](#)

Raul Rosales, senior executive fellow at the centre for climate finance investment at Imperial College Business School, explores the impact of pandemic policy responses, the importance of a risk-based approach and cautions against overburdening climate change regulation.

[16 Dec: Working in crisis](#)

This podcast discusses the shift in working practices, new areas of operational management and creating a safe, supportive and inclusive work environment with Sofie De Beule-Roloff, chief operating officer of the European Stability Mechanism, and Emmanuel Dooseman, partner and global head of banking at Mazars.





As the frequency of natural hazards increases and the implications of climate change continue to surface, strengthening disaster risk governance and management strategies is critical, writes Levine Thio, Research and Programmes, Asia Pacific, OMFIF.

THE Covid-19 pandemic has tested global resilience on many fronts. It is a test that will inevitably come to an end, but the same could not be said for climate change. With rising temperatures and frequency of extreme weather patterns, climate change will increasingly play a role in natural disasters.

In the last two decades, the volume of natural disaster events has almost doubled to 7,348 from 4,212 in 1980-99 (Figure 1). In the first six months of 2020 alone, there were 207 natural disasters. This is a 27% increase from 2019.

As the severity of natural disasters increases, so do the economic damages. In 2019, global overall losses totalled \$166bn and insured losses \$57bn. These were significantly higher in 2020, at \$210bn and \$82bn respectively.

Over the last year, significant natural disasters have included extreme wildfires in the US and Australia, a hyperactive hurricane season in North America and severe floods in China.

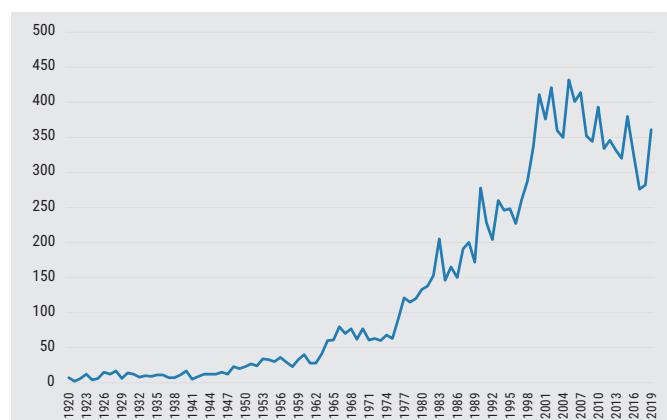
The Australian wildfires from late 2019 to early 2020 were the longest and most destructive, lasting over 200 days and destroying up to 13m acres of land. The bushfires were triggered by warmer temperatures and drought conditions. In the US, drought conditions resulted in more than 800 wildfires that burned close to 6m acres in the states of California, Oregon and Washington, damaging thousands of structures and triggering billions in insured claims.

Regionally, North America has suffered the highest losses, largely due to its hurricane season. There were 30 storms in 2020, breaking the 2005 record of 28. The hurricane season accounted for \$43bn of overall losses, of which \$26bn were insured.

In Asia Pacific, although the economic losses were lower than in the previous year, one of the main concerns for the region is its insurance gap. The protection gap is significant as Asia Pacific has the highest number of disaster events. Between 2000-19, the United Nations reported that there were a total of 3,068 disaster events in Asia, followed by 1,756 in the Americas and 1,192 in Africa.

Disaster-prone and densely populated areas mean that the cost of natural disasters has devastating impacts on countries in Asia and Latin America. Up to 90% of economic losses are uninsured in these regions.

In May 2020, Cyclone Amphan caused damages at the border of India and Bangladesh costing \$14bn, little of which was insured. This protection gap heavily impedes economies as more resources and capital are needed for the recovery, especially in large agrarian economies where climate change, extreme weather patterns and natural disasters directly affect livelihoods.

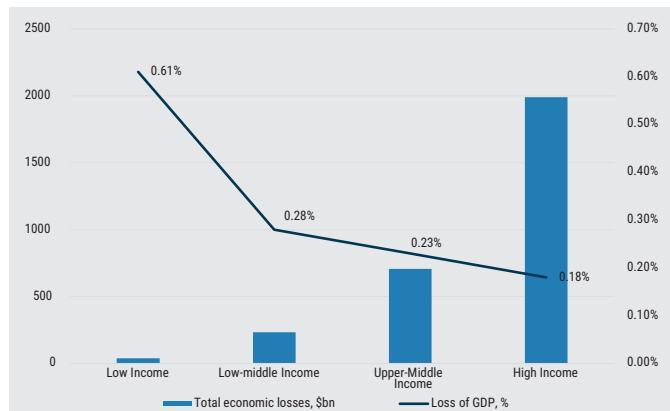


1. Increasing fluctuating number of natural disasters
Number of natural disasters, annually
Source: Emergency Events Database, OMFIF analysis

2. Low-income countries have the highest level of losses relative to GDP

Economic losses in absolute value, \$bn (LHS), and loss of GDP, % (RHS)

Source: United Nations for Disaster Risk Reduction, OMFIF analysis



The economic cost of disasters relative to gross domestic product (Figure 2) highlights the stark difference between high- and low-income countries. High-income countries bear the highest cost, partially due to dense urban spaces and cityscapes. But the losses of low-income countries relative to GDP are more than three times higher. Further, the interplay between the multiple risk drivers such as poor infrastructure, weak social safety, biodiversity loss, poverty and climate change leave low-income countries vulnerable and exposed, highlighting the importance of strengthening systemic social systems.

The heightened awareness of climate change and the increasing occurrence of natural disasters has encouraged insurers and regulators to introduce new insurance products, financing options and policies to systemically manage the cost of disaster risks.

Over the years, the catastrophe

90%

Up to 90% of economic losses are uninsured in Asia and Latin America

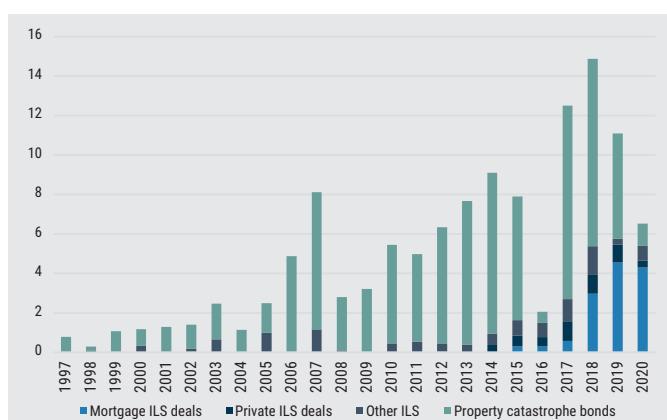
market has shown strong growth and resilience with the consistent increase in volume of insurance-linked securities issuances. ILS enables the transfer of risk to the capital markets in addition to helping to raise capital for risk events.

Despite the pandemic-driven economic slowdown, the volume of capital issued in the catastrophe bond market reached a new high. With the entrance of new market players in 2020, growing interest from investors to diversify and the ability of the ILS market to secure long-term horizon returns, the ILS market shows signs of strong growth despite wider financial

3. Catastrophe bonds and ILS market hit a new high despite the pandemic

Total capital issues by type of bond, \$bn

Source: Artemis, OMFIF analysis



market volatility (Figure 3).

With the low insurance penetration rate in Asia, many investors, reinsurers and regulators have been making efforts to develop the ILS market in the region. Singapore has been setting itself up as a global hub for alternative risk products with the Monetary Authority of Singapore's ILS grant scheme and the Singapore Exchange hosting Asia's first sovereign cat bond by the Philippines and the World Bank. The same goes for Hong Kong where the government introduced a regulatory framework for the issuance of ILS in March 2020.

Other initiatives, such as the Pacific Insurance and Climate Adaptation Programme, aim to improve the financial resilience of Pacific islanders through the development and implementation of market-based meso- and microinsurance schemes. The programme is jointly implemented by the UN Capital Development Fund, UN Development Programme, UN University-Institute for Environment and Human Security and Munich Climate Insurance Initiative.

Improving the financial preparedness and resilience of microinsurance schemes helps to fill the insurance gaps in many of the emerging markets. Additionally, mobile technology has enabled greater insurance coverage. Mobile networks provide coverage to more than 40m people in Asia and are reaching out to previously financially excluded individuals with mobile microinsurance.

As the frequency of natural hazard events increases and the implications of climate change continue to surface, strengthening disaster risk governance and management strategies is critical. As countries continue to develop and urbanise, these natural disasters will have a bigger economic burden.

The pandemic has been a catalyst on many fronts. It has brought to light the importance of a strong systemic response for disaster risk reduction that entails managing the systemic risks inherent in social and economic activity. •

Insurance sector is key to acting on climate change

Jerome Haegeli, Group Chief Economist, and Lucia Bevere, Senior Catastrophe Data Analyst, Swiss Re Institute, discuss how the insurance sector can make a significant contribution to combatting climate change.

GLOBAL warming will lead to growing intensity and frequency of severe weather events. The effects of warming temperatures are clear for all to see, including rising sea levels, melting ice caps, longer and more frequent heatwaves, more damaging wildfires and erratic rainfall patterns.

Crucially, from a global resilience perspective, warming temperatures introduce more uncertainty into assessment of severe weather and other climate events risks. How increasing temperatures change potential environmental perils are not fully understood, in large part because of the complex interplay between ‘natural’ climate change (natural variability) and anthropogenic change (from greenhouse gas emissions).

For insurers, the effects of global warming are already evident in higher claims to cover weather-related property losses, most notably from ‘secondary’ perils. These are high-frequency, low-to-medium severity events that occur around the globe. They are secondary in terms of severity in comparison with primary perils (such as earthquakes and hurricanes) and often appear as secondary effects of primary perils (hurricane-induced rainfall, storm surges, tsunamis).

Losses are amplified by socio-economic developments, such as growing populations and economic value. Many loss trends observed today originate from shifts in growing asset exposures and concentrations, and changes in land use for generating economic value. For example,

economic development and mounting population size in coastal areas susceptible to flooding is increasing the potential loss in the event of severe weather. With natural hazards expected to become more intense, the economic and insured loss potential is only set to rise further in the coming decades.

Beyond the losses from physical damage, climate trends and shocks pose a disruptive threat to the wider economy, shutting down production activity and interrupting supply chain flows. When the economy is not firing on all cylinders, global resilience is undermined. Climate change poses a systemic risk to the world economy and society at large. If left unmitigated, it will have severe consequences on the global risk landscape.

The long-term risk of unmitigated climate change is irreversible tipping points in climate systems. Increased frequency and intensity of weather-related events, and unforeseen changes in climate conditions and socio-economic developments, could bring the insurability of assets into question, particularly in highly exposed regions.

Swiss Re Institute believes that weather risks, with adaptation actions, are still insurable, but the time to act is now. In a dynamic risk landscape, exposures become uninsurable due to

sheer accumulation size. Insurers need to actively track socio-economic developments, scientific findings on climate change and the status of local risk mitigation measures. As an ongoing adaptation exercise, they need to embed this knowledge in continual risk assessment updates, so that their models represent up-to-date climate change and socio-economic circumstances.

Shifting to a net-zero GHG emissions economy is a main focus of global debate. A rapid transition would help reduce the worst of the physical risks that climate change effects could bring. Even so, the necessary change action, whether rapid or slow, will bring transition risks. Here the insurance industry can make a significant contribution in helping the world manage a period of short-term pain for longer-term economic gain. This will be done through innovating insurance solution design and new risk pools that emerge during the transition. Long-term investment in infrastructure and assets will build a sustainable economy for future generations. •



Financing against natural disasters in Asia Pacific

A comprehensive approach to disaster risk management is needed to counter the impact of climate change, writes Thomas Kessler, principal finance specialist, Asian Development Bank.

ASIA Pacific is already feeling the impact of climate change. Over the past five years, climate change and natural disasters have affected 5.2bn people, killed 1m and caused \$843.6bn in damages in the region. Seven of the ten nations most exposed to climate change risks are member countries of the Asian Development Bank. The region is home to around 40% of the world's extreme poor.

To address these issues, the ADB is developing innovative financing instruments in a comprehensive approach to disaster risk management. This involves ensuring disaster resilience in any project, understanding the future impact of climate change and considering the costs and benefits of disaster risk reduction against ex ante disaster financing solutions. These solutions become important

when risk reduction measures are not economically feasible and immediate financing is needed for emergency relief, rehabilitation and reconstruction in the aftermath of a disaster.

The ADB has recently introduced contingent disaster financing, a preagreed loan that is disbursed within 24 hours of a disaster. It comes with accompanying policy actions that strengthen long-term resilience, further reducing risk. The ADB issued \$500m of CDF to the Philippines recently and will provide a \$99m CDF programme to ten Pacific island countries.

The ADB has launched pilots for instances in Bangladesh where the insurance industry is absorbing the risk of farmers losing their livelihoods due to natural hazards. The insurance solution is based on parametric weather index products,

where payouts are triggered beyond a preagreed threshold rather than indemnified based on the assessment of the farmer's losses. Insurance provides many more areas for absorbing risk, but gives better value when combined with a financing solution.

The ADB has established a public-private partnership fund in the Philippines, Indonesia, Fiji and the Solomon Islands for financing the maintenance of a coral reef. The coral reef boosts biodiversity and provides economic opportunities for fishing and tourism communities. Absorbing up to 97% of wave energies, coral reefs also protect livelihoods and assets against natural hazards such as windstorms and tsunamis.

This partnership protects natural assets against the cost of degradation. The fund buys parametric disaster insurance, which provides immediate funding for the restoration of the coral reef, protecting communities against the loss of livelihoods.

The ADB is also exploring transferring disaster risk to capital markets by means of catastrophe bonds. Cat bonds are a subgroup of insurance linked securities whereby an investor assumes an amount of liability that comes with a disaster event. Cat bonds were initially developed by after Hurricane Andrew in 1992 heavily impacted the (re) insurance industry's available capital. •



Over the past five years, climate change has affected 5.2bn people, killed 1m and caused \$843.6bn in damages in the region.'

Cat bonds boost resilience in the Philippines

Countering natural disaster risk in the Philippines is no mean feat. Shannen Nicole Chua, Treasury Operations Officer, Bureau of the Treasury, explains how the archipelago has developed a disaster risk financing strategy to bolster resilience.

THE Philippines has consistently ranked among the riskiest countries in the world since 2011 according to the United Nations University's 'World Risk Report'. This takes into account the country's exposure to natural hazards and vulnerability to disaster risks. Financially, risk models pegged annual average losses due to typhoons and earthquakes for the Philippines at more than \$3.5bn.

In the past decade, the harrowing experience of the Philippines with typhoons Haiyan in 2013, Mangkhut in 2018 and Goni in 2020, has shown just how devastating natural disasters can be.

Recognising the immense negative impact of disasters, the National Government developed a disaster risk financing strategy. The strategy aims to improve the financial resilience of the country by introducing cost-efficient and appropriate instruments to address the various levels of natural disaster risks. For the Philippines, this strategy uses a risk layering approach to retain lower-level risks and transfer higher-level risks to ensure efficient use of capital.

A key instrument in this strategy is the catastrophe – or cat – bond. Launched in 2019, the cat bond provides the Philippines with coverage of up to \$150m against typhoons and \$75m against earthquakes. It serves as one of the risk transfers for the government in addressing more severe, but less

frequent weather events. Its quick disbursing feature coupled with its flexible use of proceeds enables the government to use any payout from the instrument for emergency funding after a disaster. In doing so, the government is able to minimise potential impacts that would have further increased the cost of the disaster.

The importance of the Philippine cat bond, however, goes beyond the financial protection it affords the government. The cat bond is an important step and a vital piece in the ever-improving DRF strategy. It is a strategy that showcases an innovative and proactive approach

to not only managing risks, but also to protecting the fiscal health of the country against the impact of disasters.

Beyond the archipelago, the Philippine-sponsored cat bond is an opportunity for other Asian sovereigns to look into issuing similar prearranged financing to protect against disaster risks and enhance their own resilience. In addition, this issuance was a stepping-stone in further deepening Asia's capital markets. The historic listing of the bond on the Singapore exchange marked the first cat bond to be listed not only in Singapore, but on any Asian exchange. •

\$3.5bn

Risk models pegged annual average losses due to typhoons and earthquakes for the Philippines at more than \$3.5bn.



Addressing the protection gap in Asia

Asia will need to look to partnerships to strengthen long-term financial resilience against risks, writes Lim Cheng Khai, Executive Director, Financial Markets Development, Monetary Authority of Singapore.

IN the last decade, Asia accounted for almost half of the world's economic losses from climate change and natural disasters, amounting to \$1.24tn. Bridging this protection gap will require the combined efforts of governments, industry and academia. We need to raise awareness of catastrophe risks in the region, increase the availability of data that enables insurers to price risks adequately and create innovative risk transfer solutions that can help countries in the region mitigate disaster risks.

To address the lack of quality catastrophe exposure and loss data in Asia, the Monetary Authority of Singapore launched the Natural Catastrophe Data Analytics Exchange in partnership with the industry, in 2016. Led by the Nanyang Technological University's Institute of Catastrophe Risk Management, NatCatDAX fuses top-down economic data from satellite and remote sensing technologies with bottom-up industry loss data. The result is a high quality, objective and widely accepted data and analytics platform.

The platform supports better quantification of catastrophe risks in Asia and accelerates the development of innovative risk financing solutions, including parametric and insurance-linked solutions. The NatCatDAX platform will also form the foundation of the Asean Disaster Risk Financing and Insurance Phase 2 programme, which focuses on developing a high-quality and objective natural catastrophe database. This will be used

to build knowledge and harness risk advisory expertise to design innovative risk financing solutions.

In 2019, Singapore launched the Southeast Asia Disaster Risk and Insurance Facility with several other Asean member states and Japan, supported by the World Bank. Located in Singapore, SEADRIF is a regional facility providing Southeast Asian countries with targeted disaster and climate risk solutions. The first product, to be launched this year, is a flood risk insurance pool to provide immediate financing to Laos and Myanmar in the aftermath of a natural disaster.

SEADRIF will look into launching other risk financing solutions to provide coverage for more Asean member states against different perils, including developing a public asset financial protection programme to support reconstruction and recovery efforts.

Beyond insurance and government risk pools, MAS has also taken progressive strides towards developing Singapore as the leading insurance-linked securitisation hub in Asia. These include a supportive regulatory regime, and launching an insurance-linked securities grant scheme to defray 100% of upfront issuance costs. This has helped to grow the ILS ecosystem and market in Singapore.

To date, Singapore's ILS regime has supported 11 catastrophe bond issuances. These include the first Asian sovereign cat bond (issued by the World Bank's Capital at Risk programme) listed on the Singapore

Exchange in November 2019, and the first pan-Asia multiperil cat bond in December 2020. MAS will continue to explore ways to enhance our regulatory, corporate and bond listing regimes to support a wider range of ILS risks, including pandemic, cyber and climate risks.

As Asia emerges from the devastating effects of Covid-19 and natural disasters, we will need to strengthen our long-term financial resilience against these structural risks, as well as new and emerging ones such as cyber risks. Partnerships will become increasingly critical in addressing the protection gap in Asia, supporting sustained growth and economic development and enhancing the region's resilience.

The Global-Asia Insurance Partnership was launched in Singapore in November 2020. It is a partnership between policy-makers and regulators, industry and academia, and focuses on risk management and insurance in Asia. The GAIP will focus on pandemic and climate risks as a start, and seeks to produce actionable research insights, create innovative risk financing solutions and develop a new generation of insurance talents with skills in areas such as big data analytics and artificial intelligence.

As Asia continues to ride the wave of innovation and technological advancement, Singapore looks forward to working in partnership with the industry, governments and academia towards sustainable and inclusive growth, and development of innovative risk transfer solutions in the region. •

Building a sustainable future in the South Pacific

Climate and disaster risk financing is key for communities most vulnerable to natural hazards. Jennifer Phillips, Associate Project Manager, Munich Climate Insurance Initiative and Dr. Shen Xiaomeng, Vice-Rector in Europe & Director of United Nations University-Institute for Environment and Human Security discuss the aims of the Pacific Insurance and Climate Adaptation Programme.

THE South Pacific is well known for its blue seas, verdant rainforest, and idyllic beaches, but life is not always such paradise for Pacific communities. Like the Philippines (page 13), Pacific Small Island Developing States are some of the most vulnerable in the world to climate and geo-risks according to the World Risk Report.

The Solomon Islands, Vanuatu, Fiji and Tonga were devastated by tropical cyclone Harold in early April 2020. This impacted more than 160,000 people and damaged up to 90% of buildings on affected islands just as Covid-19 travel restrictions were being implemented.

In December, Fiji experienced the category 5 tropical cyclone Yasa that impacted the Northern Division. Initial estimates indicate damages in excess of \$250m. In 2016, tropical cyclone Winston caused \$900m damage to the Fijian economy, nearly 20% of GDP. When such events strike, economic progress is disrupted and development gains are negated.

This high exposure to natural hazards – including tropical cyclones, droughts, floods, tsunamis, earthquakes and volcanic eruptions – in combination with PSIDS' vulnerability to economic shocks and slow or stagnant economic growth, make building resilience a formidable challenge for organisations, businesses and individuals.

Despite their high exposure to

natural hazards, most people in this region do not have any financial protection such as insurance, with penetration rates for insurance averaging around 12%. There are currently no appropriate micro- or meso-level climate and disaster risk financing instruments that individuals, businesses and organisations can access.

For this reason, the United Nations Capital Development Fund, the United Nations Development Programme and the United Nations University – managed by the Munich Climate Insurance Initiative – created the Pacific Insurance and Climate Adaptation Programme. It aims to address this coverage gap through developing and implementing market-based meso and micro CDRF instruments.

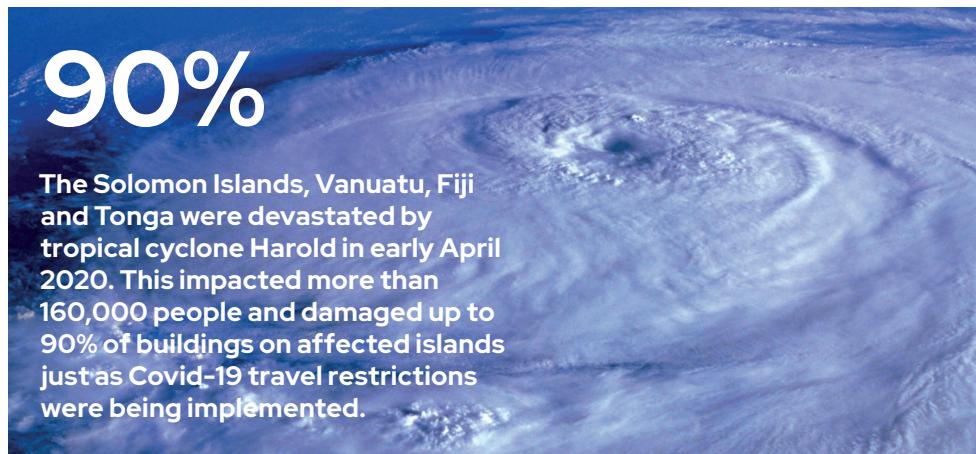
PICAP is assessing a range of

potential products to meet the needs of Pacific households and communities. One possible solution would be parametric extreme weather insurance, which usually pays out within two weeks of an event and can provide quick liquidity to families and businesses at times of need. Without such instruments, people are left with few options – withdrawing savings, using pension funds, postponing loan repayments, suspending investments or waiting for government assistance, exacerbating the consequences of the disaster.

Through the use of CDRF instruments, the financial preparedness of Pacific households, communities, businesses, and organisations against climate change and natural hazards will improve as PSIDS work towards building a more resilient and sustainable future. •

90%

The Solomon Islands, Vanuatu, Fiji and Tonga were devastated by tropical cyclone Harold in early April 2020. This impacted more than 160,000 people and damaged up to 90% of buildings on affected islands just as Covid-19 travel restrictions were being implemented.



Arab financial sector defends against climate change

Valuable efforts are being made in Arab countries to mitigate against the risks of natural disasters and climate change, writes Dr Abdulrahman Al Hamidy, Director General Chairman of the Board, Arab Monetary Fund.

NATURAL disasters, climate change and potential impacts on financial stability have been increasingly attracting the attention of regulators around the world. Climate-related risks that impact the financial sector can be split into two categories: physical and transition risks.

Physical risks include those related to threats from more powerful and regular natural disasters, leading to loss of property, assets and infrastructure. These risks can negatively affect public finances, financial and insurance sectors, individuals and businesses. The insurance sector, for example, will have to absorb the higher costs associated with the impact of natural disasters on its obligations and assets.

Mitigating physical risks can lead to transition risks. These include potential financial losses in the value of investments changing. This could be because of actions adopted to address climate change or consumer and investor behaviour changing towards environment-friendly practices.

It is crucial that measures to alleviate the effects of climate change are developed and implemented. Arab countries have made valuable efforts to support initiatives that enhance environmentally friendly financial products. Several central banks in the region have encouraged commercial banks to adopt and develop pro-climate products and services. These efforts have been reinforced by the

Arab Monetary Fund.

In June 2020, the AMF issued guidelines for central banks to deal with the implications of natural disasters and climate change on the banking system and financial stability. This guidance emphasised the need for central banks to develop a comprehensive natural disaster management and governance framework. It also encouraged the building of a strategic partnership between central banks and the private sector in disaster-recovery financing, as well as disaster risk reduction activities in general. This will lead to early contingency planning for natural disasters, reducing costs and losses that they may cause.

Coordination between stakeholders associated with the environment and natural disasters is key to the success of creating effective risk management in any country. The AMF principles highlight the importance of building a co-operative framework that streamlines coordination and information exchange between central banks, research centres and relevant environmental institutions.

Finally, central banks should facilitate environmentally friendly projects, with financing at competitive interest rates for suitable maturities. This will promote sustainable and responsible financing, providing incentives to commercial banks and project owners in a thoughtful manner. •

'It is crucial that measures to alleviate the effects of climate change are developed and implemented. Arab countries have made valuable efforts to support initiatives that enhance environmentally friendly financial products.'



Protecting investment in emerging economies

Vulnerability is rising globally. Global Parametrics co-founders Jerry R Skees and Daniel Bierenbaum explain how financial disaster risk management can be used to boost investment in emerging economies.

OVER 90% of the world's poorest communities live in countries disproportionately impacted by climate and natural disasters. Even the prospect of disasters can reduce investment, stunt economic growth and limit development of adequate infrastructure. When disasters strike, the economic shocks are more pervasive and human costs higher due to low levels of resilience.

Over the last decade, natural disasters have resulted in estimated losses of \$2.98tn. Of that, approximately \$845bn was insured, resulting in a global protection gap of 72%. This protection gap is especially challenging in emerging economies, reaching 94% by some estimates. In Asia, for example, only \$151bn out of \$1.23tn in losses was covered over the last ten years.

Such low levels of protection mean that populations become almost entirely dependent on sovereign or international financial support for recovery. Vulnerability is expected to rise globally with the greatest increase in emerging economies where the protection gap is highest. Solutions are needed that forecast, monitor and finance recovery from natural disasters.

Global Parametrics was founded with backing from the British and German governments to widen the market for natural disaster risk protection and increase resilience globally. By building parametric risk financing products, GP aims to contribute to more sustainable economic growth, and reduce

poverty and conflict caused by disasters.

Investment in emerging economies is undermined because unprotected disaster risk increases the cost of capital, forcing firms to self-insure through savings – slowing economic growth. Disaster risk also reduces access to economic opportunities for producers, suppliers and employees, and to essential goods and services. Public investments in health, education and infrastructure can be disrupted when disasters strike and resources

\$2.98tn

'Over the last decade, natural disasters have resulted in estimated losses of \$2.98tn. Of that, approximately \$845bn was insured, resulting in a global protection gap of 72%.'

are diverted to support recovery.

Some of the challenges faced by the market for risk transfer products in emerging economies include lack of data, lack of appropriate products in the global reinsurance markets and underdeveloped legal and regulatory environments.

To overcome some of these challenges, GP has developed a global risk transfer platform that leverages climate science, data modeling, financial engineering and

broad industry partnerships. This platform is used to understand, price and underwrite the risks of natural disasters anywhere in the world.

GP's established partnerships with global reinsurers and alternative capital providers facilitate the delivery of these risk transfer solutions in well-established legal and regulatory jurisdictions.

Partnerships with institutions such as VisionFund International have helped close the financing and insurance gap in emerging markets. GP's parametric products are used to provide disaster financing to the microfinance institutions in VFI's network so that they can provide 'recovery' loans to their clients. GP's products trigger access to contingent credit from the InsuResilience Investment Fund and risk transfer payments from GP's Natural Disaster Fund. VFI now protects fifteen countries from six perils.

GP has been involved in numerous other innovative risk transfer programmes, including drought protection in Tanzania and India, forecast financing for tropical cyclones in the Philippines and reef protection in Mexico.

With standardised indices for drought, extreme precipitation, tropical cyclones, earthquakes and floods, GP can structure parametric solutions customised to client needs. As clients build more resilience, they can also more effectively use the financing supported by GP's products. •

Guernsey's financial regulators go green

Carbon neutrality by 2050 is on the financial agenda for the Bailiwick of Guernsey, writes Jeremy Quick, Director, Guernsey Financial Services Commission. Encouraging green investment while combatting greenwashing is a key priority.

JUST off the coast of Normandy, the Bailiwick of Guernsey has embraced the national colour and taken on a green agenda. It aims to achieve carbon neutrality by 2050 with an interim target to reduce 1990 emission levels by 57% by 2030. Guernsey is self-governing, apart from defence and foreign affairs, and meeting carbon targets will be helped by its constitutional relationship with the UK.

The Bailiwick hosts a small international financial centre with expertise in private equity and insurance. Reflecting the islands as a whole, the local finance industry has a green agenda. The green section of the local marketing organisation 'We are Guernsey' reveals activities ranging from venture capital support of clean technology to microfinance

in east Africa.

Following former Bank of England governor Mark Carney's initiative in the wake of the 2015 Paris agreement, financial regulators have become an integral part of greening the financial sector. This is true in Guernsey –with a twist. The Bailiwick's regulator, the Guernsey Financial Services Commission, participates, like many other regulators, in various international regulatory forums. It is building a green perspective into its everyday supervisory approach, including stress testing.

However, the commission has also been innovative. It has bought a small forest with part of its reserves and offers a green element within its employee pension options. To encourage green investment while combatting greenwashing, the

commission assures the use of a green kite mark for several specified green funds.

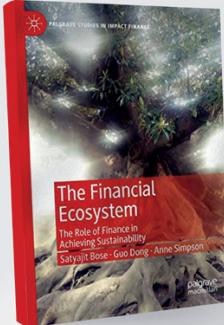
The most recent innovation of the commission is to offer life insurers a regulatory incentive to invest in green assets. Life insurers can upgrade a green bond by one notch and so influence spread risk. In other words, it's a green discount. This is subject to the requirement that the prescribed capital requirement cannot fall by more than 15%. In addition, the prescribed capital requirement ratio cannot ever fall to under 105% without the discount. Life insurance is particularly suitable for this treatment given the need to cover long-term liabilities.

In offering this incentive, the commission hopes to redress the hidden bias in investment ratings towards carbon-based fuels. This is controversial. The consensus view is that any such discount would need to be based either on data that show green bonds to be incorrectly rated or on scenarios forecasting better-than-expected outturns for green bonds in the future. It is for these reasons the commission takes the view that a factor-based approach is best.

Following Carney's initiative, regulators have pressed the financial sector to consider and disclose risks around climate change. Regulators remain open minded about other measures to combat climate change with several major initiatives under consideration. Guernsey is contributing to that debate. •

'The commission has also been innovative. It has bought a small forest with part of its reserves and offers a green element within its employee pension options.'





A sweeping study of the potential for change

OMFIF Chairman David Marsh reviews *The Financial Ecosystem – The Role of Finance in Achieving Sustainability* (Palgrave Studies in Impact Finance, October 2019), by Satyajit Bose, Guo Dong and Anne Simpson.

THE role of asset managers and owners in fighting climate change and promoting sustainability is a burgeoning area for activism, gradually getting results. Few have been more energetic than Anne Simpson, managing investment director of board governance and sustainability at CALPERS, the \$400bn California public pension fund, one of the world's top 15 asset owners.

Her peers and interlocutors are the world's most important pension and investment funds – including the premier state names from Japan, Norway, China, Saudi Arabia, Hong Kong and Singapore – as well as the governments behind them and the corporations in which they invest.

Amid the torrent of literature on sustainability and the financial system, what is needed is an exhaustive compendium succinctly assembling knowledge from many areas of money and finance. Simpson and her co-authors, Satyajit Bose and Guo Dong, have created a wide-ranging study covering many fields.

Bose is professor of practice at Columbia University and associate director of the Programme in Sustainability Management. Dong is director of the Earth Institute China Initiative, also at Columbia University.

What the writers call 'cross-pollination' takes in ecology, economics, engineering, environmental science, finance, law, political science and sociology.

The product of nearly a decade of endeavour, the book contains 16 chapters each with extensive references and footnotes. These make for handy, self-standing units for teaching and study.

The subjects range from general themes such as the overall nature of the financial system and the governance of corporations through to meticulous disquisitions on frameworks for sustainable accounting, the state of regulatory initiatives on financial disclosure, cost-benefit analysis and discounting and the role of human capital.

'The authors collect lessons from the chronicles of Mesopotamia and medieval papacies up to the age of blockchain and social media.'

The book allots space to the relationship between manufactured and natural capital, ways of deepening partnerships between corporations and capital providers and the factors behind co-operative movements and social enterprises. The volume includes fascinating expositions on conservation finance, ecosystem services and financing clean technology innovation.

Simpson, one of the forces (along with OMFIF's John Plender) behind Pirc, a pension fund governance group, is a well-known advocate of winning over corporations and

their shareholders to the norms and practices of sustainability.

The book underlines the scale and power of the largest corporations: 'The relative impotence of the vast majority of governments in the face of the power of large corporations renders ineffective any effort at sustainable development that does not include the corporate sector as a driving force.'

The authors cite studies showing that of the top 100 global economic entities, 69 are corporations and just 31 countries – and this was before Covid-19 further increased the clout of American and Chinese high-tech.

Yet sustainability as an economic doctrine is hardly new. The volume features extensive historical research and analysis as well as tightly written case studies. The authors collect lessons from the chronicles of Mesopotamia through to the Dutch East India company and medieval papacies up to the age of blockchain and social media. Continuity is the watchword.

The benevolent intermingling of the 'ecosystem' – public and private systems 'embracing the heterogeneity of investor and stakeholder perspectives' – can be an all-encompassing force for good. Citizens, workers, savers, consumers and investors need to work together in spheres of overlapping interests.

If one financial handbook is needed to guide these communities on their journey, Bose, Dong and Simpson have provided it. •



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FORTHCOMING MEETINGS

FEBRUARY

Future of sustainable data and its role in achieving global sustainability goals

Wednesday 17 February, 12:00-13:00, GMT

A virtual panel with the Future of Sustainable Data Alliance discussing how data can be leveraged to achieve the UN sustainable development goals, Paris Agreement goals and a sustainable post-pandemic recovery.

Infrastructure in the Covid-19 recovery

Tuesday 23 February, 17:00-18:00, GMT

A conversation with Jin Liquin, president of the Asian Infrastructure Investment Bank, on the emerging infrastructure trends that are shaping Asia's post-pandemic recovery, the bank's development over the past five years and priorities for the bank.

MARCH

OMFIF-DZ sustainability symposium

Thursday 4 March, 07:00-17:00, GMT

A series of panels with DZ bank, bringing together key financial institutions from Asia, Europe and the Americas to discuss effective ways of boosting sustainable investment and creating efficient market structures to align with a net-zero economy.

Gender Balance Index 2021 launch

Monday 8 March, 14:00-15:30, GMT

The launch of the eighth annual Gender Balance Index, which tracks the presence of men and women in senior positions at central banks, sovereign funds and public pension funds.

