Scaling Finance for Adaptation and Resilience

Roundtable

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Contents

Forewords

Executive summary

Institutions represented

Adaptation and resilience levers

1. Mapping assets and assessing physical risk
2. Making adaptation visible
3. Giving physical risk an owner
4. Building shared public-private action
5. Using insurance to enable resilience

   MSCI Institute Insight: How global insurers are responding to rising physical climate risk

6. Building resilience across supply chains

About

Disclaimer

Foreword

When UN Global Compact Network Singapore brought together a group of senior leaders on the sidelines of Ecosperity this year, the goal was simple: bring the right people into the same room, and think through the challenge of climate adaptation collectively rather than in isolation.

What followed was one of the more candid conversations we have had as a network. Around the table were senior leaders from across industries, each carrying the weight of decisions that stretch decades into the future. What struck me was not how different their challenges were, but how similar. Recurring themes emerged: the difficulty of justifying long payback periods to short-term stakeholders, the false comfort of insurance as a substitute for genuine adaptation, and the gap between knowing what needs to be done and having the organizational capacity to do it.

At the same time, there was much to learn from. Organizations shared concrete steps already underway: quantifying physical risk in dollar terms, extending due diligence beyond the asset boundary, and building supplier relationships that reach down to the raw material level.

For years, conversations on corporate sustainability have focused on what businesses should do. Increasingly, particularly when it comes to physical risk and adaptation, the more pressing question is how we help them do it. UN Global Compact Network Singapore exists to accelerate that journey towards responsible and sustainable practice. But acceleration requires both a realistic sense of where businesses actually are, and a genuine willingness to work through that gap together. This report sets out to do exactly that: to help businesses navigate where corporate adaptation stands today, and to point toward what comes next.

I am grateful to everyone who contributed so openly to this conversation, and to our partners at the MSCI Institute for making this session, and this report, possible. I hope what is captured here serves as a practical reference for the road ahead.



David Fogarty
CEO & Executive Director
UN Global Compact Network Singapore

Foreword

Physical climate risk is increasingly shaping operational decisions, capital allocation and business strategy.

The question for many organizations is no longer whether these risks matter, but how to respond in ways that strengthen resilience while creating long-term value.

That question was at the heart of the conversations covered here. More than 70 senior leaders from Singapore's finance, business and sustainability communities came together during Ecosperity Week 2026 to share practical experience on translating awareness of physical climate risk into action.

What emerged was a conversation focused on how organizations are putting adaptation into practice. Participants discussed the decisions that shape resilience: improving the quality of physical-risk information, assigning clear ownership, embedding resilience into investment decisions, strengthening collaboration across institutions and supporting resilience throughout supply chains.

These discussions point to a broader pattern we continue to observe through the MSCI Institute's research. Participants across capital markets recognize physical climate risk as financially material. The greater challenge is action — connecting better information with better governance, stronger investment decisions and more coordinated action across the public and private sectors.

Rather than prescribing a single approach, this report reflects the experience of practitioners working across financial institutions, corporations and the broader resilience ecosystem. Together, they offer practical insights into integrating physical climate risk into business decisions.

Adaptation is increasingly part of how organizations think about business continuity, competitiveness and long-term value. I hope the perspectives shared here contribute to the continuing evolution of resilience as a core business capability.



Linda-Eling Lee
Founding Director
MSCI Institute

Executive Summary

More than 70 senior leaders in risk, sustainability and finance convened during Ecosperity Week 2026 in Singapore to discuss how to scale finance for adaptation and resilience amid rising physical climate risks.

Through eight roundtables convened by the UN Global Compact Network Singapore with research support from the MSCI Institute, participants examined how to move from awareness to action, the role of data and insurance, and the partnerships needed to accelerate investment in resilience. The discussions were held under Chatham House Rule.

Across the discussions, participants converged on six practical levers for translating awareness of physical climate risk into action. While awareness of physical climate risk has grown considerably, translating that awareness into investment, governance and financing remains the central challenge.

- **Location data and risk assessments are the foundation of resilience.** Credible physical-risk assessment begins with knowing where assets are located and understanding the systems on which they depend. Better location data, combined with on-the-ground validation, enables more effective investment decisions and makes resilience significantly less costly when incorporated early in an asset's design.

- **Adaptation is already happening but remains largely invisible.** Significant resilience investment is already embedded in capital expenditure, maintenance and operational decisions, yet it is rarely identified as adaptation. Better labeling and more decision-useful disclosure can help make resilience investment visible and financeable, though translating avoided losses into financial value remains a fundamental challenge.

- **Governance determines whether adaptation becomes a business priority.** Organizations act when physical risk is framed as protecting business continuity, customers and long-term competitiveness rather than as a standalone sustainability issue. Clear ownership, informed boards and explicit treatment of risk determine whether resilience becomes embedded in business decisions.

- **Adaptation must be approached as shared public and private action.** Many physical risks exceed the capacity of any single organization to manage alone. Public–private partnerships, sovereign risk-pooling and stronger engagement between governments and the private sector can help make systemic risks more manageable, while ensuring that SMEs and smallholders are not left behind.

- **Insurance enables resilience but cannot substitute for it.** Insurance remains essential for transferring residual risk, but resilience depends first on reducing underlying exposure. Better use of insurers' data and underwriting capabilities can improve risk assessment, strengthen pricing signals and help extend protection to underserved markets.

- **Supply-chain resilience depends on prioritization and collaboration.** Supply chains are often where physical climate risks become business risks. Building resilience requires identifying critical nodes, strengthening relationships across value chains, and supporting smaller suppliers whose vulnerabilities can become systemic risks.

Institutions represented

ADM Asia-Pacific Trading

Airgorithm

Allianz

Aon

APRIL International Enterprise

ArkTerra

Asia Infrastructure Solutions

Bird & Bird

Blue Bond Accelerator

CBRE

Chanel

City Developments Limited

Climate Arc

Climate Investor One

Credit Agricole CIB

Cundall

DBS

DFI Retail Group

Enterprise SG

ERM

Ernst & Young

Future Fit Foundation

Giti Tire

Grant Thornton

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Grow Asia

Guava International

Heifer International

HSBC

Human Meridian Advisory

IHH Healthcare

Income Insurance Limited

Keppel Limited

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MUFG

NCS

Nissay Asset Management Corporation

NTUC

NUS

OCBC Bank

OVOL

Phoenix EcoTech

PWC

Ramboll Singapore

SATS

Schneider Electric

Seatrium

SGS International Certification

SGX

SK Tes

SMF

Standard Chartered

Surbana Jurong

Swiss Re

Temasek

Tsao Pao Chee Group

UN Office for the Coordination of Humanitarian Affairs (OCHA)

UN Principles for Responsible Investment

UN Development Programme

Univers

Unravel Carbon

UOB

Warburg Pincus

WongPartnership LLP

The discussions were grounded in a broader market reality: physical climate risk is rising, organizations are responding, but action has yet to keep pace with the scale of the challenge.

$4.6T

Projected annual cost of asset damage and business interruption by 2050 under 3◦C warming

Source: MSCI Sustainability & Climate

$100B+

Insured natural-catastrophe losses exceeded $100 billion for the sixth consecutive year

Source: Swiss Re Institute

$300B+

Annual economic losses from natural disasters exceeded $300 billion in nine of the past 10 years

Source: Aon

1. Mapping assets and assessing physical risk

Key actions participants urged

- **Start with location data as the minimum viable input and ground-truth every platform output against the site** — including substations, access roads and surrounding infrastructure — before acting on it.
- **Build and maintain a complete asset-level location register.** Organizations cannot ground-truth, prioritize or price an exposure they have not yet mapped.
- **Use multiple data sources and sense-make directionally.** Design new assets beyond minimum code requirements where feasible, capturing resilience at the point of build rather than through more costly retrofits.

Credible physical-risk assessment begins with knowing where assets are located and understanding the systems on which they depend. Yet many companies still lack complete and accurate location data for their own portfolios, while insurers and banks often hold richer pictures of asset-level exposure than their clients themselves. That asymmetry remains underused.

Physical risk frequently lies beyond the asset boundary. One participant recalled a manufacturing plant outside Bangkok that remained completely dry during severe flooding, nevertheless ceasing operations for weeks due to impassable roads and lack of worker access. The asset was intact; the system around it failed. Several participants therefore stressed assessing the broader operating environment—including transport links, utilities and other supporting infrastructure—rather than evaluating facilities in isolation.

Ground-truthing often changes the investment decision. One risk model identified an asset as highly flood-prone until existing flood defenses were verified, while other site visits uncovered vulnerabilities that models had overlooked. One real-assets investor also described assessing a Japanese data center by examining its supporting infrastructure, including the location of substations and whether access depended on a single road.

Building resilience is significantly less expensive when it is incorporated before construction rather than retrofitted later. A Korean data-center operator designed a facility with an additional resilience margin that improved heat tolerance without requiring larger or more expensive cooling equipment, demonstrating that resilience can often be achieved at little additional cost when considered early. One real-assets investor has developed "climate passports" that record an asset's hazards, resilience measures and scenario sensitivities throughout its life cycle, carrying resilience information forward into valuation, financing and future transactions.

No model can eliminate uncertainty, making judgment as important as data. Participants consistently advocated using multiple sources of information and treating model outputs as directional rather than definitive. False confidence is more dangerous than acknowledged uncertainty: a model that incorrectly classifies an asset as low risk can lead to far costlier decisions than one whose limitations are openly recognized.

2. Making adaptation visible

Key actions participants urged

- **Label the adaptation that is already happening.** Use emerging adaptation taxonomies to identify resilience investments already embedded in capital expenditure, maintenance and operational budgets.
- **Treat disclosure as a tool for better decisions, not simply compliance.** Develop decision-useful disclosures that help investors, insurers and lenders understand how physical risks are being managed.
- **Express adaptation in financial terms.** Frame resilience investments in terms familiar to financial decision-makers — such as revenue protected, costs avoided and business continuity — to strengthen the business case for investment.

Adaptation investment is already happening but remains largely invisible. Flood protection, backup power and water systems, climate-resilient crop strains and business-continuity planning are already embedded in capital expenditure, maintenance and operational decisions across many organizations. Even prominent projects mentioned by participants, such as Singapore's Marina Barrage and Kuala Lumpur's SMART Tunnel, were seldom recognized as adaptation measures. Much of the initial challenge is internal, as organizations often struggle to distinguish adaptation-related spending from routine maintenance or good engineering, leaving resilience investments buried within broader operating budgets.

Adaptation taxonomies can help make resilience investment visible and financeable. Participants highlighted emerging taxonomies that classify more than 100 adaptation activities, creating a common language for identifying resilience investments and incorporating them into sustainable finance. Greater consistency in labeling can help channel financing toward activities that already improve resilience and may ultimately reduce the cost of capital, although participants noted that practical transaction pathways remain less developed than they are for climate mitigation.

Disclosure creates visibility, but demonstrating financial value makes adaptation financeable and investable. Requirements such as ISSB S2 are bringing physical climate risk into mainstream reporting and, increasingly, into lending and investment decisions. Yet participants emphasized that disclosure creates value only when it supports better decisions. Investors, banks and insurers need information that distinguishes residual risk from inherent risk, tests underlying assumptions and demonstrates how organizations are managing physical climate exposure. Participants also stressed the need to express resilience in financial terms that decision-makers already use, such as revenue protected, contracts preserved and costs avoided. Industry-level evidence — including emerging adaptation premiums and physical-risk penalties — can help build directional awareness, but organizations will ultimately make the strongest business case by demonstrating the financial value of adaptation within their own operations. That evidence allows management to scale successful resilience investments while giving lenders and investors greater confidence in an organization's long-term resilience and ability to repay.

3. Giving physical risk an owner

Key actions participants urged

- **Position physical climate risk alongside other enterprise risks.** Embed adaptation within enterprise risk management, where it can be considered alongside cyber, credit and operational risks rather than as a standalone sustainability issue.
- **Assign clear ownership and make every exposure an explicit decision.** Every material risk should be consciously mitigated, transferred or retained — not left unmanaged by default.
- **Strengthen board oversight and decision-making.** Build climate expertise at the board level and incorporate physical climate risk into major strategic decisions, including acquisitions and long-term capital investments.

Governance determines whether adaptation becomes a business priority. Organizations were far more likely to act when physical climate risk was framed as protecting business continuity, customer relationships and long-term competitiveness rather than as a sustainability objective. Participants repeatedly emphasized that adaptation gains traction when it is viewed as a business issue rather than an environmental one. A former telecommunications executive noted that resilience during extreme events can translate into stronger customer loyalty and measurable market-share gains, while another participant described resilience as a responsibility to maintain essential services during crises rather than simply protect physical assets.

Clear ownership is the difference between accountability and compliance. Participants drew a consistent distinction between organizations that assign genuine responsibility for managing physical risk and those that simply satisfy regulatory requirements. Governance becomes meaningful when a named individual or function is accountable for developing the business case, prioritizing investments and ensuring that adaptation is incorporated into operational decisions. Regulation may enable action, but ownership determines whether organizations move beyond compliance.

Boards shape the quality of adaptation decisions. Participants described how boards with greater climate expertise ask more probing questions, driving more decision-useful analysis from management. One luxury goods company attributed a significant shift in its approach to physical climate risk to board renewal, with new directors raising more searching questions about climate risk, sustainability strategy, circularity and performance metrics. A large healthcare organization now requires physical climate scenario analysis for acquisitions before investment decisions are made. Better-informed boards improve not only oversight but also the quality of the information produced throughout the organization.

Every material exposure should become an explicit management decision. Participants consistently returned to three choices on physical risk: reduce the risk, transfer it or knowingly retain it. Failure in governance comes not in accepting or mitigating risk, but in allowing exposures to persist without conscious consideration. Making those decisions explicit, asset by asset and exposure by exposure, creates discipline throughout the organization and helps ensure that governance translates into action rather than remaining a formal exercise.

Action is already happening but often less visible

Analysis of 3,000 listed large- and mid-cap companies:

89%

Show at least one hazard-specific resilience activity

Source: MSCI Institute

82%

Say resilience investment delivered positive financial or reputational returns

Source: MSCI Institute

20%

Disclose offering products or services that help customers adapt to physical risk

Source: MSCI Institute

4. Advancing shared public-private action

Key actions participants urged

- **Engage governments as partners in adaptation planning.** Bring operational experience and ground-level risk information into National Adaptation Plans and other public planning processes.
- **Expand public-private financing mechanisms for systemic risks.** Build on public-private partnerships, sovereign risk-pooling and blended finance structures to make large-scale physical risks more manageable and investable.
- **Ensure SMEs and smallholders are part of the adaptation transition.** Pair private finance with public incentives, grants and technical support so that resilience extends across value chains rather than concentrating among larger organizations.

Many physical climate risks exceed the capacity of any single organization to manage alone. Participants agreed that the largest and most correlated risks cannot be addressed solely through private markets. As physical risks become more systemic, public institutions have an increasingly important role in providing the policy frameworks, shared infrastructure and financial mechanisms that enable private capital to invest with confidence. Without that foundation, markets may simply retreat from the areas facing the greatest climate risk.

Public-private partnerships can make systemic risks more manageable and investable. Participants pointed to sovereign risk-pooling mechanisms such as the South East Asia Disaster Risk Insurance Facility (SEADRIF), which combines catastrophe risks across multiple countries with concessional and commercial capital to create more diversified and financeable exposures. Similar approaches using blended finance can help mobilize investment in resilience projects that commercial capital alone may not support, providing a model that could extend from sovereigns to corporates and the SMEs within their value chains.

Corporates are not simply recipients of public adaptation policy—they help shape it. Organizations often possess detailed operational knowledge of how climate hazards affect infrastructure, supply chains and business operations that governments cannot easily observe. Participants emphasized that sharing this experience through National Adaptation Plans and other planning processes can strengthen public investment decisions while creating better alignment between public infrastructure and private resilience strategies. Information should flow in both directions: from governments' system-wide perspective to businesses, and from businesses' operational experience back into public planning.

Resilience is only as strong as the weakest link in the system. Participants repeatedly returned to the vulnerability of SMEs and smallholders, particularly within agricultural supply chains. Many lack the financial capacity to invest in adaptation independently, leaving critical parts of value chains exposed even as larger organizations become more resilient. Public incentives, blended finance and capacity-building can help close that gap. Participants also noted that resilience does not always require significant new capital: better access to information, adjustments to business processes and prudent diversification can often reduce exposure at relatively low cost. Together, these approaches help ensure that adaptation strengthens entire systems rather than shifting risk onto the least-resourced participants.

Insurance is sending clear signals

MSCI Institute survey of 50 global insurers and reinsurers:

88%

Express concern that physical climate risk could become systemic financial risk

Source: MSCI Institute

58%

Are actively pursuing parametric insurance as a commercial opportunity

Source: MSCI Institute

91%

See resilience advisory services as a key commercial opportunity

Source: MSCI Institute

5. Using insurance to enable resilience

Key actions participants urged

- **Treat insurance as the backstop, not the strategy**. Pair every risk-transfer decision with measures that reduce underlying physical risk wherever feasible.
- **Use insurers' risk intelligence more effectively.** Encourage insurers and reinsurers to share the asset-level data and insights they already hold to improve risk assessment and pricing.
- **Expand protection through innovative risk-transfer solutions.** Develop carefully designed parametric, blended-finance and pooled insurance mechanisms that help extend coverage to SMEs, smallholders and underserved markets while managing basis risk.

Insurance transfers risk, but resilience reduces it. Participants repeatedly challenged the misconception that insurance itself constitutes adaptation. Insurance provides financial recovery after a loss; it does not reduce the underlying exposure. A participant from the agri-commodities sector illustrated the distinction by describing a typhoon that damaged an insured processing plant in Cebu. While insurance covered the loss, it also created a false sense of security, leaving the underlying vulnerability unchanged.

The protection gap is widening where resilience is needed most. As physical climate risks become more severe, insurers are withdrawing from some of the markets and hazards facing the greatest exposure. Participants cited examples ranging from flood insurance along Australia's east coast to snow-related coverage for solar assets in Japan, while agricultural insurance remains unavailable or unaffordable for many smaller producers. When insurance retreats, the risk does not disappear; it shifts to those least able to absorb it.

Better use of insurance data can strengthen resilience before losses occur. Participants noted that insurers and banks often possess richer asset-level information than their clients, drawing on underwriting, claims and portfolio data that can improve physical-risk assessments. Sharing that information more systematically would strengthen dialogue between insurers and policyholders, improve pricing of residual risk and help organizations make more informed resilience investments before disasters occur. Turning underwriting data into a two-way conversation improves both the pricing of risk and the resilience behind it and enhances the long-term viability of the insurance industry.

Innovative insurance solutions can help narrow the protection gap, but they are not a panacea. Parametric insurance and blended-finance structures can expand access to protection for underserved markets and smaller organizations, particularly where conventional insurance is difficult to provide. Participants also cautioned that these instruments require careful design to manage basis risk and maintain confidence among policyholders. Used thoughtfully, they can complement broader resilience strategies rather than replace them.

MSCI Institute Insight

How global insurers are responding to rising physical climate risk

The roundtable discussions align closely with findings from the MSCI Institute's recent survey of global property and casualty insurers and reinsurers.

While insurers increasingly recognize that physical climate risk is reshaping underwriting and client relationships, the survey suggests the industry is evolving from a focus on risk transfer toward helping clients understand, manage and reduce physical risk before losses occur.

Key findings include:

- **Insurers view physical climate risk as a strategic challenge.** Concern is nearly universal, with respondents expecting physical risks to become increasingly systemic and to affect the long-term insurability of assets and infrastructure.
- **Resilience is becoming a business opportunity.** More than nine in ten insurers identified climate resilience advisory services as a significant opportunity, while 58% highlighted parametric insurance as an important area for growth.
- **Historical catastrophe models are no longer sufficient.** Insurers increasingly supplement traditional models with higher-resolution geospatial data, terrain information and localized hazard analysis to improve underwriting and pricing.
- **Integration remains uneven across regions.** While 68% of surveyed European insurers reported embedding physical climate risk into enterprise risk management, the figure was 36% in Asia-Pacific and roughly one-third in North America.
- **The industry's role is expanding.** Respondents increasingly view insurers as partners in resilience — helping clients quantify physical risk, improve decision-making and reduce exposure before losses occur, rather than simply paying claims after disasters.

Taken together, the findings reinforce the roundtable's conclusion that insurers can help scale adaptation — not only by transferring residual risk, but also by improving the information, incentives and decisions that help organizations become more resilient.

What the Market Thinks: How Global Insurers are Responding to Rising Physical Risk

Read the full report

Action needs to outpace awareness

Among the world's listed companies:

65%

Disclose completing physical climate risk assessments

Source: MSCI Institute

76%

Have integrated physical risk into risk management

Source: MSCI Institute

MSCI Institute survey of 550 companies:

2 to 5 years

The dominant assessment horizon — far shorter than the life cycle of most physical assets

Source: MSCI Institute

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6. Building resilience across supply chains

Key actions participants urged

- **Identify the critical nodes where physical climate risks become business risks.** Map interdependencies across suppliers, infrastructure and logistics, and prioritize the relationships whose disruption would have the greatest operational impact.
- **Build resilience with suppliers, not just within the organization.** Support critical suppliers through long-term partnerships, technical assistance and financing mechanisms such as microfinance where appropriate.
- **Test resilience, don't just plan for it.** Stress-test business continuity plans against forward-looking climate scenarios and update them regularly as conditions change.

Physical climate risk is not geographically bounded; a company's risk profile is inseparable from the resilience of its supply chain. Participants repeatedly observed that the greatest operational disruptions frequently originate beyond an organization's own assets. The 2011 floods in Thailand proved that geographically localized floods could result in major insurance losses ultimately borne by automotive and electronics manufacturers in Japan and the United States through disrupted supply chains.

Understanding what shapes and breaks resilience requires identifying the critical nodes where disruption would materially affect operations. One consumer-goods retailer and distributor described focusing resilience efforts on strategically important warehouses rather than thousands of retail outlets because those hubs represented the greatest operational risk. Participants also emphasized that resilience depends not only on the substitutability of suppliers, but also on the substitutability of the finished product. While many products can be sourced or substituted relatively easily, staple goods such as rice require a different approach. One participant described tracing distribution networks and supply regions for rice because substitution was far less feasible. Prioritizing these critical dependencies allows organizations to concentrate resilience investments where they deliver the greatest value.

Building supply-chain resilience requires collaboration as much as oversight. Participants described how regulatory requirements and customer expectations have already improved visibility into supply chains, while long-term partnerships can strengthen resilience at critical points in the value chain. One tire producer, responding to customer and regulatory expectations, traced the majority of its smallholder rubber suppliers while supporting the adoption of climate-resilient planting practices that improved both yields and farmer incomes. Participants also highlighted microfinance and long-term procurement commitments as practical tools for helping SMEs and smallholders invest in resilience.

Resilience must be designed and tested in partnership with suppliers and the broader ecosystem, not built in isolation. As organizations become increasingly dependent on value-chain partners and surrounding communities during disruptions, business continuity plans need to be communicated, coordinated and regularly tested across organizational boundaries. Participants also emphasized that these plans should evolve to reflect forward-looking climate risks rather than relying primarily on historical assumptions. Recent non-climate disruptions have reinforced the importance of regularly testing response plans and ensuring that management actions remain proportionate to the risks they are intended to address. Resilience is not a one-time exercise but an ongoing process of reassessment and adaptation.

Acknowledgement

This report was prepared under the direction of **Ser Jin Tan**, climate risk specialist at MSCI and the MSCI Institute's lead fellow in APAC.

About

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To learn more, please visit unglobalcompact.sg

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