ClimateWise

The ClimateWise Insurability Readiness Matrix

A shared language for action

UNIVERSITY OF CAMBRIDGE | Institute for Sustainability Leadership

The University of Cambridge Institute for Sustainability Leadership

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ClimateWise

ClimateWise brings together the insurance industry into a member network convened by CISL, which integrates sustainable leadership with world-leading research capability to address the impacts of climate change. ClimateWise is uniquely placed to bring together business, government and academic expertise; it provides a collective voice for the industry; a forum to interact with other stakeholders, and it enables the transition of the insurance industry through a defined set of Principles aligned to disclosure requirements.

Disclaimer

Please refer to this report as: *University of Cambridge Institute for Sustainability Leadership (CISL). (2026). The ClimateWise Insurability Readiness Matrix*, UK: Cambridge Institute for Sustainability Leadership.

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Acknowledgements

We are grateful to the following, whose insights greatly supported this work:

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William Rees (Aviva), Andrew MacFarlane, Jordan Barker (Beazley), Olivia Brindle (Canopius), Tim Coates (Convex), Jonathan Kassian and Joel Challoner (Flood Re), William Butler (GaiaSicura), Christopher James (Intact Insurance), Joanna Lloyd-Davies and Jack Longden (QBE), Jeff Manson (RenaissanceRe), Craig Judd (Tokio Marine Kiln).

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Trevor Maynard (Centre for Risk Studies, Judge Business School, University of Cambridge), Alex Koukoudis (Lloyd's Market Association), Olly Breen (Santander), Ed Steeds (WWF), Vijaypal Singh Bains (Emirates NBD).

Other reviewers:

Jessica Tamman, Adrian Chapman and Liz Henderson (Aon), Ben Howarth (Association of British Insurers), Christoph Baumann-Kesten (IMF), Ian Gibbs (Sedgwick), Sid Miller (CISL Fellow), Bronwyn Claire (CISL Fellow and Ortec Finance).

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Executive summary

Increasing physical climate risk is fundamentally reshaping the conditions under which insurance markets operate. Insurability, the extent to which insurance is both available and affordable, relies on insurers' capacity to price risk at levels that are sustainable for policyholders and sufficient to preserve insurer solvency. When risk becomes too high, too volatile or too poorly understood, insurance markets come under pressure: premiums rise beyond what customers can pay, coverage becomes restricted or insurers withdraw from markets entirely.

As extreme weather events intensify and losses rise, exceeding US$318 billion globally in 2024 (over half of which were uninsured[1]), insurability is emerging as one of the earliest and most consequential resilience signals. The effects of increased insurability pressures have the potential to cascade across financial systems: assets become unbankable, investment retreats, and communities lose the financial infrastructure they need to recover and adapt, driving financial inequality.

Yet despite the urgency of this challenge, no widely adopted framework exists for assessing and communicating how close a given asset, place or sector is to becoming uninsurable, or what levers could reverse that trajectory. This means that policymakers, investors, developers and financial institutions are making decisions without a shared language that ensures they can easily understand and evaluate insurability risk over time.

The Insurability Readiness Matrix (from here onwards 'the Matrix') is designed to solve this. The Matrix is a structured diagnostic and engagement tool that provides a shared language for assessing, communicating and improving insurability across assets, sectors and places. It evaluates insurability across seven components: Data and Modelling, Physical Resilience, Policy Alignment, Market Capital and Capacity, Stakeholder Awareness and Financial Literacy, Accessibility and Affordability, and Recovery Ecosystem. Each of these components is rated on a traffic light scale, accompanied by a trend signal and a set of pathways which would move that component to Green. This report sets out the Matrix in detail, and via two examples: one focused on wildfires in Los Angeles, and one on floods in Hull. Drawing on case studies, this report also documents what movement along the insurability spectrum looks like in practice.

The Matrix was developed through a multi-stage research process combining cross-sector convenings across (re)insurance, banking, academia and civil society; a literature review and survey; a pilot in which (re)insurers applied the Matrix to real-world scenarios; and a concluding workshop with both insurer and non-insurer participants.

Through this process, the primary applications of the Matrix were noted as stakeholder engagement, strategy and product innovation, and client consultation and advocacy. (Re)insurers also noted that the pilot prompted internal engagement across their respective organisations, which helped co-ordination and surfaced new opportunities. At the same time, non-insurer participants tested the utility of the Matrix, verifying its ability to provide an accessible view of how the insurance industry assess risk.

This report proposes a first version of the Matrix. Given the urgency of the insurability challenge and the importance of transparency and co-creation of this tool by the ecosystem, we are intentionally publishing at this early stage of development. In its current format, this is a tool which can already be informing real conversations between the stakeholders who assess insurability and those who determine it, and we invite stakeholders to partner with ClimateWise to design and run a series of more detailed trials as part of this process. At the same time, our next research steps are (i) to continue engaging (re)insurers to integrate the Matrix into existing workflows; (ii) to develop an aggregation methodology; (iii) to expand testing in emerging markets and developing economies.

The Matrix is most effective when used as a catalyst for engagement, prompting dialogue on how insurability can be strengthened and sustained across the economy. The shared language it provides is critical if we are to achieve a 'resilience dividend': a virtuous cycle in which proactive investment in resilience reduces risk, helps maintain affordable insurance and reinforces the conditions for further adaptation. Over time, this self-sustaining dynamic drives continued risk reduction and builds long-term economic resilience.[2]

Figure 1: Insurability Readiness Matrix template

[Geographical location] [Peril]
Scope: [Type of asset] **Horizon:** [Time period for the assessment]

Overall status	Most urgent component	Priority quick win
Green Amber Red [A headline signal (R/A/G) with a one-sentence rationale reflecting the completing insurer's aggregated judgement across all components, weighted towards binding constraints.]	[The binding constraint rated Red with the fastest-declining trend] [Timeframe over which that decline is operating]	[The Pathway to Green considered High ease / High impact across any component] [Lead stakeholder]

Readiness Component	Status	Trend	Pathways to Green
Data & Modelling Risk data availability and quality [Choose either one of the following:] Contributory Binding constraint	Green Amber Red [Evidence / professional judgement that determines the rating]	↑ Improving → Stable ↓ Declining	[The levers required for a transition] [Key stakeholder#1] [Key stakeholder#2] [Key stakeholder#3]
Physical Resilience Asset and location resilience			
Policy Alignment Laws, regulation and planning			
Market Capital & Capacity Capital depth and availability			
Stakeholder Awareness & Financial Literacy Risk awareness and trust			
Accessibility & Affordability Coverage reach and cost			
Recovery Ecosystem Post-loss reinstatement capacity			

Section 1

Why this matters

The changing landscape of insurability is one of the earliest signals of whether assets, sectors and economies can thrive under accelerating physical climate risk. Insurability represents a threshold where insurance is available and affordable.[3] As this threshold shows signs of instability, it indicates that the underlying risk may be outpacing our current capacity to manage it.

The growing exposure

Natural disasters caused US$318 billion in losses in 2024, 25 per cent above the ten-year average, with over half of those losses uninsured.[1] This protection gap is projected to grow, rising a further 25 per cent in 2025[4] and doubling by 2030 (compared to 2023).[5] In lower-middle- and lower-income countries, protection gaps exceed 95 per cent,[6] while advanced economies are seeing insurers withdraw from high-risk markets. In California, the state's insurer of last resort has seen its exposure grow by 230 per cent since 2022, reaching US$724 billion.[7] In parts of Australia, over 650,000 properties now face either unaffordable cover or none at all.[8] An industry survey of 25 leading (re)insurers globally shows that climate and natural catastrophe risk considerations are moving into the core of underwriting, and increasingly influencing coverage and terms over the next 3–5 years.[9] A study by the European Insurance and Occupational Pensions Authority (EIOPA) identifies adaptation measures as an important and effective approach for maintaining the long-term availability and affordability of insurance products.[10]

Despite these signals, adaptation is still lagging and development continues in high-risk areas. More than half of new homes built in the US in 2023 were located in high-risk hurricane, flood or wildfire zones.[11,12] In the UK, one in nine homes built between 2022 and 2024 are in medium-to-high flood-risk areas.[13] Governments are setting ambitious targets for housing, energy and infrastructure development, yet these policy ambitions rarely integrate a forward-looking assessment of whether the resulting assets will remain insurable over their lifecycle.

Two distinct dynamics leading to shared risk

The insurability challenge manifests differently across geographies, but the underlying threat, the absence of effective risk transfer, is shared.

In low- and middle-income countries, insurability challenges emerge from the intersection of climatic extremes, weak institutional delivery and inequitable access; creating a structural gap between insurability and inaccessibility.[14] The root causes are multiple and mutually reinforcing. According to the Insurance Development Forum (IDF), at the infrastructure and governance level, insufficient disaster preparedness, limited early warning systems, rapid and unplanned urbanisation, environmental degradation and a lack of usable risk data all constrain the conditions under which insurance markets can function.[3]

Meanwhile, the International Association of Insurance Supervisors (IAIS) and The World Bank look at the challenge in developing economies from a demand and supply side perspective. On the demand side, income constraints, access limitations, low financial literacy, mistrust of insurance products, and habitual reliance on government or donor assistance suppress uptake even where products exist. On the supply side, underdeveloped domestic insurance markets, limited technical capacity among insurers and supervisors, and insufficient access to catastrophe risk models make credible pricing and product design difficult.[15] With average penetration rates of around 3 per cent in developing economies,[3] most losses go uninsured. This leads to slower economic recovery time, up to four times longer than in countries with high insurance penetration.[16]

In advanced economies, the dynamic manifests differently, and is instead centred around a widening affordability gap and market retreat. Insurers facing escalating losses, growing at around 7 per cent annually,[17] are increasing their premiums or altogether withdrawing from high-risk geographies. Where public insurance schemes step in as insurers of last resort, they absorb increasing fiscal pressure without necessarily addressing the underlying risk trajectory, creating a contingent liability for governments that is rarely reflected in public accounts or credit assessments. Crucially, the social consequences are not distributed evenly: lower-income households, communities in the most exposed locations and small businesses without the resources to self-insure bear the greatest burden. An assessment by Australia's prudential regulator found that the home insurance protection gap is more severe in regions that already have lower levels of protection today, with over 40 per cent of rural households potentially uninsured in 2050.[18]

What connects these two dynamics is the mechanism: in both cases, the absence of effective risk transfer removes the financial buffer that enables communities to recover, adapt and invest in their own resilience.

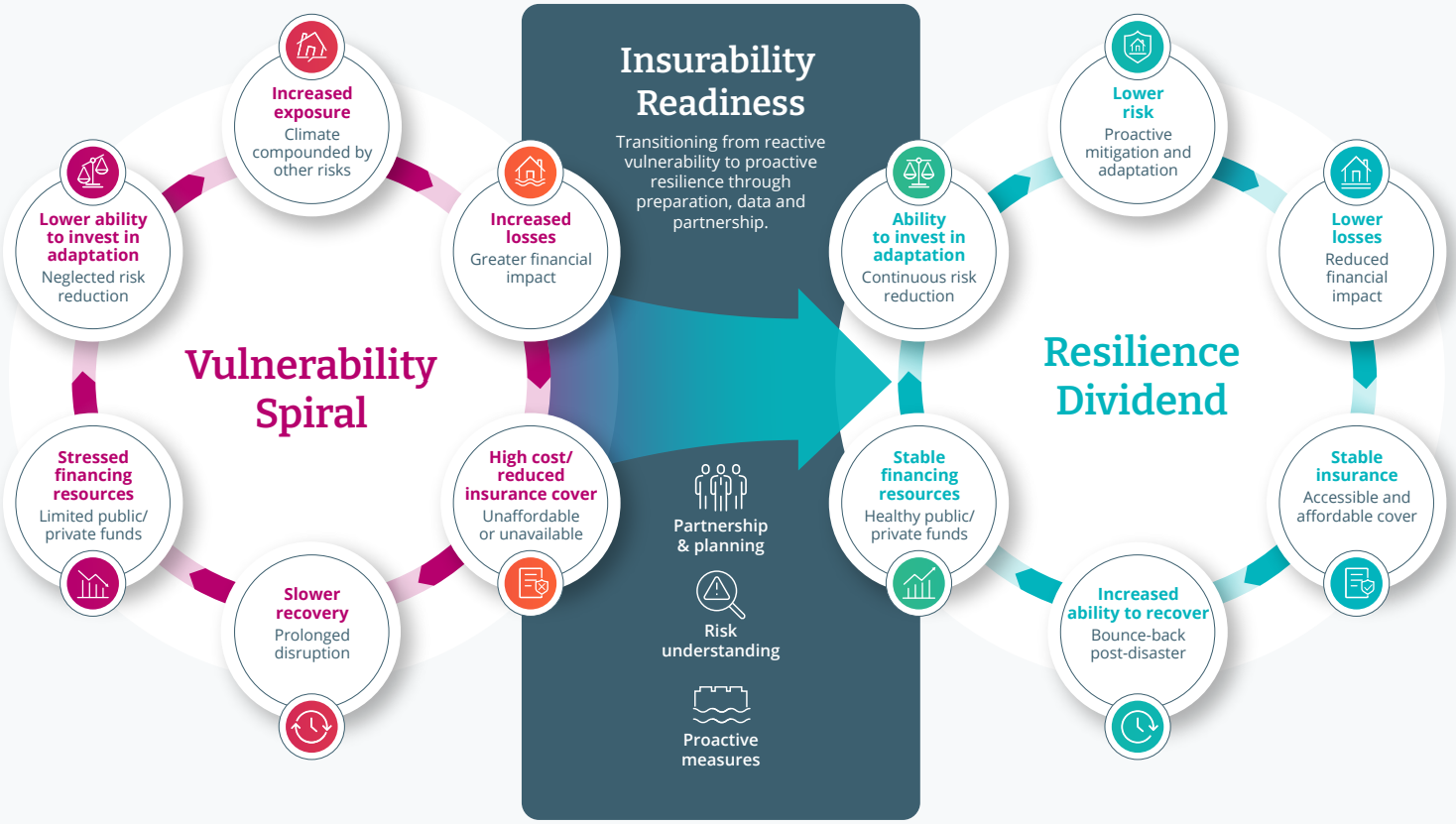
The economic domino effect

Challenges on insurability are not simply a financial services problem. When insurance withdraws, the effects cascade: lenders cannot issue mortgages or loans against uninsured collateral;[19,20] property values and tax bases decline; investment flees;[21] and municipal finances come under strain. Ultimately, the stability of housing, energy, transport and sovereign credit can all be affected.[22] Without insurance, disaster recovery is slower, costlier and more dependent on debt and ad hoc government aid, restraining the resources available for resilience investment and perpetuating a vulnerability spiral.

This dynamic points to a fundamental risk: the assets and communities most exposed to climate risk are also those least able to access the risk transfer mechanisms they need to recover and adapt. Critically, the opposite is also true: the relationship between insurability and resilience is self-reinforcing in both directions – creating a resilience dividend. Where risk reduction investment is made, insurance becomes more affordable, which in turn strengthens the conditions for further adaptation and investment.[23]

Future insurability challenges are therefore not an inevitable outcome of climate change; it is substantially a function of policy and investment choices made today.

Figure 2: Moving from vulnerability spiral towards resilience dividend



The role of insurers

Critically, insurers function as risk signallers.[3] When premiums rise or coverage is withdrawn from a location or asset class, this communicates underlying risk that other market signals fail to capture.

Yet the potential of this role is frequently unrealised in practice. Insurers often report being brought into infrastructure and development projects too late, typically after site selection, design parameters and contractual risk allocations have been finalised.[9] By this point, the decisions that most determine long-term insurability have already been locked in, leaving insurers with little option but to price risk as it presents itself; which could translate to higher premiums, higher deductibles and/or coverage restrictions. Realising insurers' full potential, therefore, requires treating them as partners in project design and innovation and not merely as gatekeepers at the point of financial close.[24]

Ecosystem action

Addressing insurability challenges requires ecosystem action. Businesses, governments and communities across the economy are exposed to a risk that many have not yet confronted directly: that the insurance coverage they rely on today may not be available, or may not be affordable, tomorrow. The assumption that risk is covered is itself a risk. As climate change reshapes the loss distribution of physical hazards, the conditions under which insurance markets can function are changing faster than many have recognised. This is why the seriousness of the insurability challenge needs to be confronted now, across the full ecosystem of actors who shape it.

Section 2

Overview of the Insurability Readiness Matrix

2.1. Objective and intended audience

The Matrix has been created to provide a **shared language** for assessing, communicating and improving the insurability of assets, sectors and places. It is designed to bridge a gap in the market: maintaining insurability requires a whole-ecosystem approach, yet stakeholders currently lack a common framework for understanding where insurability stands, why it is under pressure, and what can be done to maintain or restore coverage. Its core function, therefore, is as a **structured diagnostic and engagement tool**.

The Matrix does this in two ways. Firstly, it identifies the bottlenecks and structural challenges that are driving an asset, sector or location towards a reduction in insurability. Secondly, it identifies the levers available to improve insurability, including how to move an assessment from Red to Amber or Amber to Green, and the stakeholders needed to lead the change. Across both of these features, it enables insurers to communicate more easily with project financiers, policymakers and other stakeholders in terms that are understandable and actionable across institutional boundaries.

The Matrix can also be applied to markets and perils where insurance does not currently exist. In these contexts – emerging markets with minimal penetration, new perils without established products, or new asset classes and technologies seeking coverage – the Matrix can function as a market development tool. The same seven components (explained below) that identify why an existing market is deteriorating can also anchor why a new market has not yet formed: absent risk data, inadequate physical resilience standards, misaligned policy frameworks, insufficient capital, low awareness, unaffordable premiums and underdeveloped recovery infrastructure are the conditions that prevent insurance markets from emerging as well as those that may cause them to retreat.

The Matrix as designed in this report is primarily intended for physical climate risks: perils such as flood, wildfire, storm, drought and extreme heat, where the insurability challenge is driven by the changing frequency, severity and distribution of physical damage events. This is the context in which the seven components and their illustrative descriptors have been developed and validated.

It is important to understand that the Matrix is not an underwriting engine and does not substitute for actuarial pricing models or individual risk assessments. Its intended use is as a structured diagnostic and engagement tool: insurers assess and complete the Matrix, drawing on their underwriting knowledge and available data; the outputs are then used to engage relevant stakeholders, such as developers, governments, regulators and financiers, around the specific actions needed to maintain or improve insurability. This positions the Matrix within a broader ecosystem process, in which early and structured stakeholder engagement is a core enabler of how effectively climate resilience is integrated into development decisions.[9]

The Matrix is designed to catalyse action to maintain and improve insurability. Access to protection and financial resilience is a critical component of community and economic stability; the Matrix should be used in service of improving that access, and any completed assessment should be accompanied by a genuine commitment from the completing institution to engage with the pathways it identifies. There is a risk that lenders, investors or other capital market participants receiving a Matrix with multiple Red ratings interpret them as a signal to reduce exposure before peers do, which would accelerate exactly the market retreat the Matrix is designed to help prevent. For responsible use, the Matrix should always be shared in the context of an active conversation about Pathways to Green. Complete step-by-step guidance for the completion and use of the Matrix is available separately as an accompanying document to this report.

Primary users of the Matrix are insurers and reinsurers, who complete the assessment. Meanwhile, primary audiences include project financiers, developers and policymakers who use the outputs to inform planning, investment and policy decisions.*

Figure 3: The Insurability Readiness Matrix as a stakeholder engagement tool

* ClimateWise, as an initiative that requires members to report annually against a set of ClimateWise Principles, does not mandate or require the use of the Matrix; relevant stakeholders are free to engage with the Matrix in whatever way that derives the most value to them.

2.2. The structure of the Matrix

Figure 4: Elements within the Insurability Readiness Matrix

[Geographical location] [Peril]
Scope: [Type of asset] **Horizon:** [Time period for the assessment]

Overall status	Most urgent component	Priority quick win
Green Amber Red [A headline signal (R/A/G) with a one-sentence rationale reflecting the completing insurer's aggregated judgement across all components, weighted towards binding constraints.]	[The binding constraint rated Red with the fastest-declining trend] [Timeframe over which that decline is operating]	[The Pathway to Green considered High ease / High impact across any component] [Lead stakeholder]

5 Summary

1 Readiness Component	Status (2)	Trend (3)	Pathways to Green (4)
Data & Modelling Risk data availability and quality [Choose either one of the following:] Contributory Binding constraint	Green Amber Red [Evidence / professional judgement that determines the rating]	↑ Improving → Stable ↓ Declining	[The levers required for a transition] [Key stakeholder#1] [Key stakeholder#2] [Key stakeholder#3]
Physical Resilience Asset and location resilience			
Policy Alignment Laws, regulation and planning			
Market Capital & Capacity Capital depth and availability			
Stakeholder Awareness & Financial Literacy Risk awareness and trust			
Accessibility & Affordability Coverage reach and cost			
Recovery Ecosystem Post-loss reinstatement capacity			

The Matrix is organised around five elements, as shown on the template on the previous page and explained below:

1 Readiness Component

The Matrix assesses insurability across seven Readiness Components, each representing drivers of insurability.

- **Data and Modelling** examines whether the risk data and predictive models exist to support forward-looking risk assessments especially related to climate-related risk and modelling.
- **Physical Resilience** assesses the degree to which assets and locations are built or adapted to withstand extreme weather events.
- **Policy Alignment** looks at whether policy, regulations and insurance requirements are mutually reinforcing rather than in conflict.
- **Market Capital and Capacity** considers whether sufficient financial capital and reinsurance depth exist to absorb losses at viable premiums.
- **Stakeholder Awareness and Financial Literacy** assesses whether individuals, businesses and governments understand the risks they face and the role insurance plays in managing them.
- **Accessibility and Affordability** examines whether coverage is within the practical and financial reach of those who need it.
- **Recovery Ecosystem** evaluates the local capacity, such as loss adjusters, contractors, supply chains, legal systems and claims infrastructure, to reinstate assets efficiently after a loss event.

Each of these components is explained further below.

The seven components do not carry equal weight in all contexts. Their relative importance varies by geography, peril, asset class, and the structural conditions of the market being assessed. Therefore, depending on the scenario that the Matrix is applied to, each of the components is designated as either a **binding constraint** (a condition whose failure on its own prevents coverage regardless of other components' status) or a **contributory constraint** (compounds insurability pressure). This designation is scope specific and should reflect the insurer's professional judgement about what is actually driving coverage decisions for the assessment in question.

2 Status

A RAG (Red/Amber/Green) rating that characterises the current state of each component.

- 🔴 **Red** indicates a condition that is materially undermining insurability and requires urgent action.
- 🟡 **Amber** indicates a condition that is under pressure, where action is needed to prevent further decline.
- 🟢 **Green** indicates a condition that is currently adequate to support insurability and is not currently a constraint on coverage.

3 Trend

A directional signal indicating whether a component's status is

↑ **Improving** → **Stable** or ↓ **Declining**.

Trend is distinct from status: a component rated Amber may be improving towards Green or deteriorating towards Red, and these carry different implications for urgency and intervention. To assess trend, it is important to consider how the underlying risk is changing over time. Including trend moves the Matrix from a static snapshot into a forward-looking instrument, consistent with its function as an early warning tool.

4 Pathways to Green + Stakeholders

The specific actions or interventions available to improve the status of a component from Red to Amber or Amber to Green. Each pathway should be as specific as the context allows, with identification of which key stakeholders or actors to engage with and would be best positioned to implement each pathway.

5 Summary

Completed last and positioned above the Matrix, the summary provides the headline signal intended for senior decision-makers and non-specialist audiences. It contains three parts: overall insurability status (a single Red, Amber or Green signal with a one-sentence rationale weighted towards binding constraints); most urgent component (the binding constraint rated Red with the fastest-declining trend and its timeframe); priority quick win (one highest-impact lever from Pathways to Green with the lead stakeholder named).

2.3. Readiness Components

The seven Readiness Components of the Matrix were derived from a literature review and stakeholder consultations, and validated through the survey and working group process. The detailed methodology is available in the Methodology report published as an accompanying document to this report. They build on analytical frameworks developed by Panda (2025), the IDF (2025) and Howden (2025). The components map a different range of conditions that determine whether a risk is insurable, spanning technical, physical, regulatory, financial, social and operational dimensions. This is not intended to be an exhaustive list, but a starting point to identify and understand drivers of insurability across geographies and priority actions.

The status descriptors, Pathways to Green and stakeholders shown below are illustrative. In practice, the RAG rating and trend assessment for each component should be determined by the assessing (re)insurer based on the specific characteristics of the asset, sector or location under review. The appropriate levers and stakeholders follow from that assessment.

Data and Modelling

The availability, granularity and quality of risk data and predictive models.

Accurate risk assessment is the foundation of insurability. Better data and more sophisticated modelling capacity allow for more accurate risk forecasts. However, data quality and model sophistication vary across regions. Data gaps are particularly acute in emerging markets and developing economies (EMDEs),[25] but are also a growing constraint in advanced economies as climate change shifts risk beyond the bounds of historical loss data,[22] presenting novel challenges regarding insurers' ability to anticipate systemic exposure.[26]

At the same time, improved data and more granular risk modelling can, in some contexts, accelerate market withdrawal as well as enable market development: greater data sophistication makes it easier for insurers to identify clusters of high-risk properties, which can lead to very high premiums or refusals to underwrite for the most exposed. The creation of Flood Re in the UK was partly a response to this dynamic: increasingly precise flood risk mapping made individual property-level risk more legible, which concentrated uninsurable risk rather than distributing it. Hence, better data is necessary but not sufficient for improved insurability; the policy and market structures that determine how that data is acted upon matter equally. This component looks at whether the data infrastructure exists to support reliable forward-looking risk quantification.

Status			Pathways to Green
Red	Amber	Green	Open-data sharing; digital twins; sensor and satellite integration; investment in research to enhance understanding of risk dynamics
No historical or predictive data; inconsistent metrics	Significant data gaps; reliance on broad proxies and historical data only	Asset-specific, real-time data; transparent, peer-reviewed modelling	Data providers; Developers; Government

Physical Resilience

Asset and location resilience against extreme weather events.

The physical characteristics of an asset or location (such as its design, construction standards, exposure to hazards and the protective infrastructure surrounding it) are determinants of loss severity. Assets built to higher resilience standards typically generate lower expected losses, which translates into improved insurability.

Adaptation and resilience measures, improvements that reduce exposure to climate-related hazards, are a direct lever on this component. This component looks at the degree to which physical resilience has been built into assets and places, and where investment in adaptation could most effectively reduce underlying risk.

Status			Pathways to Green
Red Assets are obsolete or highly vulnerable to known hazards; no resilience measures in place	Amber Meets minimum building regulations but lacks climate future-proofing	Green Retrofitted/ improved with resilience measures	Retrofit; nature-based solutions; hard infrastructure (eg sea walls) Asset owners Developers Government Insurers

Policy Alignment

Consistency between local laws, building regulations, land-use planning and insurance requirements.

Regulatory and planning frameworks shape what gets built, where it is built, and to what standard. Misalignment between planning policy and physical risk, for instance, continued development in flood plains or wildfire-prone zones, systematically drives up insurability pressure. Conversely, risk-informed land-use planning, building codes that require resilience standards, and regulatory frameworks that support rather than constrain risk-based pricing can significantly improve the conditions for insurability. Beyond the built environment, policy misalignment affects insurability across a wider range of sectors. In agriculture, the absence of policy frameworks that enable adaptation could impact crop productivity and losses.[27] Meanwhile, trade policy and disclosure frameworks also impact supply chain resilience.[28] Regulatory expectations are also important to compel the use of forward-looking data, without which risk can remain underestimated.[26] In EMDE contexts, the existence of domestic regulatory frameworks that permit the cross-border risk transfer is also an important aspect of this component.[29]

It is also important to think beyond policy adoption and consider whether requirements are being enforced in reality,[30] including how the political economy environment could be an enabling factor or a barrier. A technically sound regulatory framework that lacks political champions may not advance insurability, and the absence of sustained enforcement may result in the lack of reliability that financial institutions require to factor them into lending and investment decisions. This component looks at the degree to which policy frameworks are aligned with insurability outcomes.

Status			Pathways to Green
Red	Amber	Green	Zoning/land-use laws; building regulations; legal clarity
Outdated or unenforced zoning and building regulations; legal vacuum on liability; policies do not account for the needs of insurance coverage; regulatory restrictions prevent cross-border risk transfer	Evolving regulations in place but limited enforcement; no incentives for resilience; cross-border risk transfer permitted but inconsistently applied	Harmonised, enforced policy framework; proactive incentives for resilience; regulatory environment actively enables cross-border risk transfer and forward-looking pricing	Policymakers; Regulators; Local planning authorities

Market Capital and Capacity

The availability and depth of capital to absorb losses.

Insurability depends on sufficient market capital and reinsurance capacity to absorb losses.[31] In high-risk or emerging markets, capital constraints can drive coverage gaps independently of underlying risk levels. Regional risk-pooling mechanisms, public–private partnerships and access to international reinsurance markets all affect this component.

This component looks at the status of financial capacity to support coverage at viable premiums, both in existing markets where capital depth is declining, and in new or emerging markets where capital backing needs to be established before any product can be offered. In new market development contexts, assessing this component therefore means identifying what capital structure and reinsurance arrangements would need to be in place as a precondition for product launch, and which actors are best positioned to provide that foundation.

In EMDE contexts, scale is an important aspect of this component. Even when capital exists in principle, the transaction costs and deal sizes of individual insurance arrangements in lower-income markets frequently make them unattractive to private insurers and reinsurers without aggregation, pooling or blended finance structures that bring individual risks to investable scale.[29]

Another related consideration is exposure concentration: where insured risk is heavily concentrated geographically or sectorally, the aggregate loss from a single event can exceed what market capital can absorb at viable premium rates, even where individual risks are adequately priced.

Status			Pathways to Green
Red	Amber	Green	Alternative risk transfer; risk pooling
Lack of appetite; no reinsurance	Limited niche players; high cost of capital	Robust, competitive market; deep capital; innovative risk-transfer tools	(Re)insurers · Capital markets · Government/ Finance ministries · Brokers

Stakeholder Awareness and Financial Literacy

Stakeholders' awareness of risk, and their financial and insurance literacy.

Demand for insurance is shaped not only by price and availability but also by whether individuals, businesses and governments understand the risks they face and the role insurance plays in managing them. Low risk awareness and limited financial literacy suppress uptake even where products exist, deepening protection gaps and reducing the viability of insurance markets.

Trust deficits, whether in insurance products, providers or claims processes, compound this.[14,15] Building trust requires sustained performance track records and product design choices that demonstrate reliability and genuine protection to consumers when needed.[32] This component looks at the degree to which awareness, literacy and trust support effective insurance demand.

Status			Pathways to Green
Red	Amber	Green	Public education campaigns; transparent claims data sharing; community-based risk workshops
High moral hazard (expectation of 100% government bailout); widespread scepticism of insurance providers; risk is ignored or seen as unavoidable	High awareness of hazard but low trust and literacy on insurance mechanics; insurance only bought when mandated	High risk-literacy; stakeholders understand the link between their own mitigation efforts and premium reductions; high trust in claims processes and industry transparency	NGOs Brokers Consumer groups

Accessibility and Affordability

The accessibility, affordability and distribution of coverage.

Competing financial constraints on households and more severe, frequent and unpredictable losses impact the affordability and accessibility of insurance. Distribution barriers (including geographic, technological and institutional) limit access, particularly in informal economies and remote communities. Premium levels that exceed the ability of households or businesses to pay effectively exclude those most at risk.

At the same time, coverage that exists and is technically affordable may still fail communities if products are not designed for their specific circumstances. For example, claims processes that may require documentation that informal sector workers cannot produce effectively exclude them from payouts. This component looks at whether coverage is accessible and affordable to the populations and asset owners that need it, and where product innovation, subsidy design or distribution partnerships could improve reach and protection.

Status			Pathways to Green
Red	Amber	Green	Risk-pooling; premium subsidies tied to resilience actions; mobile distribution technology Government Insurtech providers (Re)insurers
Technical premiums exceed 10–15% of asset value/ income; no brokers or agents operate; products have high minimum entry requirements	Premiums are only affordable via government intervention/ subsidies; limited distribution channels; products exist but not designed for the specific circumstances of the target population	Competitive pricing; multiple last-mile distribution channels; products are tiered to fit income levels	

Recovery Ecosystem

The capacity, cost-efficiency and speed of the local market to reinstate assets and resolve claims.

Crucially, insurability is not only a function of how risk is priced and transferred before a loss event, but it also depends on what happens after one. This component assesses the health of the local recovery ecosystem and where systemic improvements could reduce barriers and delays in recovery. The availability of local loss adjusters, skilled contractors, the cost and speed of repair and rebuilding, the efficiency of claims resolution, and the functioning of legal and dispute mechanisms all affect the economics of providing coverage.

In markets where rebuilding costs are high, supply chains are constrained or legal resolution is slow, insurers face higher effective loss costs that feed back into losses, as well as future premiums and coverage availability. In EMDE contexts, this component looks at the availability of legal, administrative and institutional frameworks to register, manage and enforce insurance contracts. Where this foundational infrastructure is absent or fragile, improving claims handling speed or contractor availability is secondary to establishing the institutional preconditions for enforceable coverage.

Status			Pathways to Green
Red	Amber	Green	Vocational training (skilled labour); strategic material reserves; fast-track rebuild permits
Chronic labour/ material shortages; hyper-inflation of repair costs; legal system is opaque/slow; minimum local repair capacity	High reliance on global supply chains (vulnerable to delays); moderate legal backlogs; standard rebuild timelines with no disaster surge capacity	Robust local supply of skilled labour/materials; efficient legal arbitration; tax incentives for rebuilding with resilience measures	Construction firms; Loss adjusters; (Re)insurers

Component validation: survey findings

To test whether the seven components adequately capture the drivers of insurability, survey respondents were asked to rate the relevance of each on a scale of one to five, identify any critical missing components, and assess whether the framework applies across different geographies and perils. Insurers accounted for the majority of responses (55 per cent), followed by academia, research institutions and non-governmental organisations (NGOs) (18 per cent), reinsurers (14 per cent), professional services firms including construction, engineering and legal (9 per cent), and brokers and intermediaries (5 per cent).

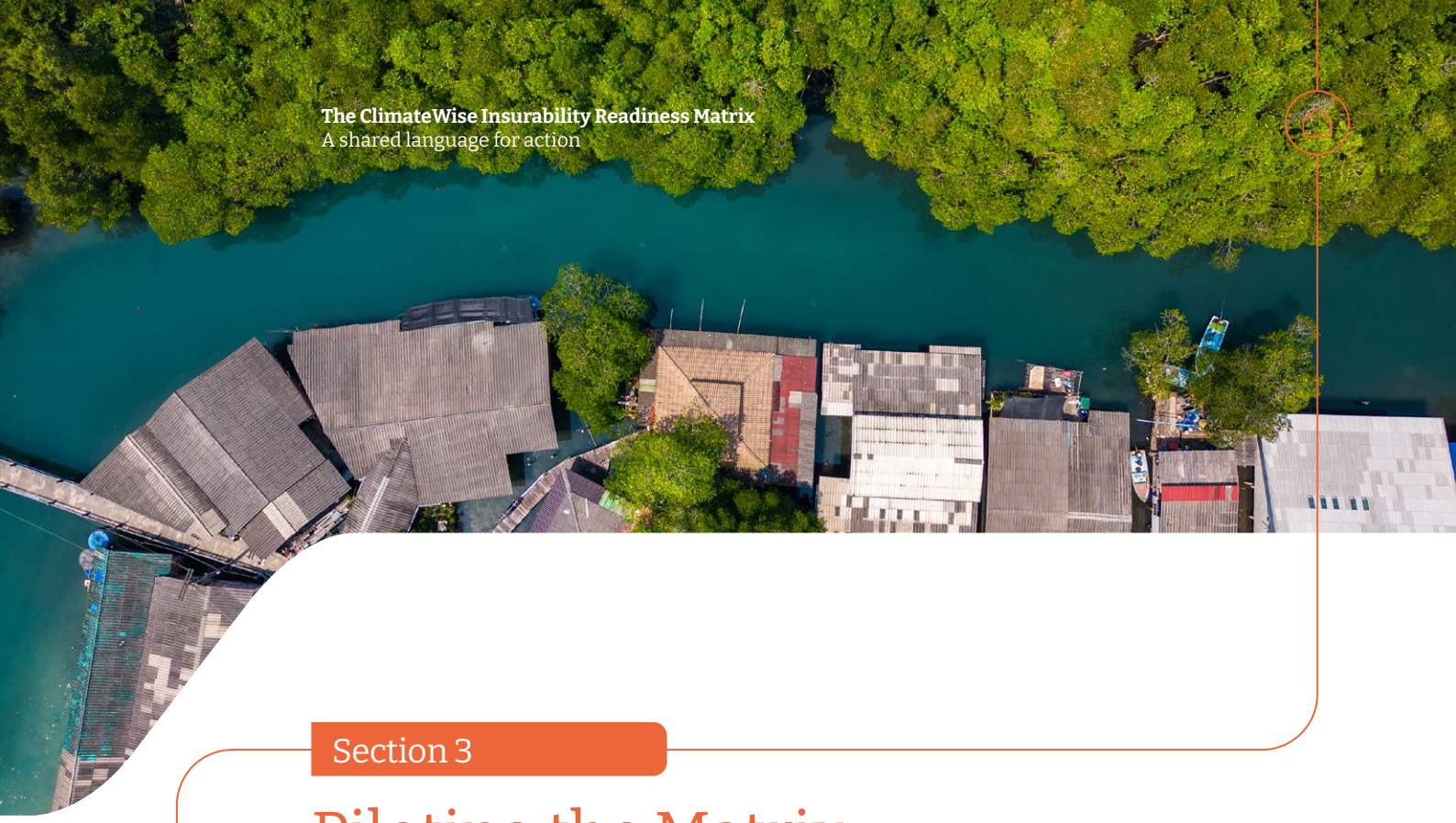
All seven components were rated above the midpoint, confirming broad support for the component selection. *Data and Modelling* received the highest average score (4.53), indicating both high importance and strong consensus. *Physical Resilience* (4.12) and *Market Capital and Capacity* (4.00) also scored strongly. These three components, spanning the technical, physical and financial dimensions of insurability, form the core of what respondents consider most fundamental to underwriting appetite.

The remaining four components scored between 3.24 and 3.59 with higher variance. *Stakeholder Awareness and Financial Literacy* received the lowest score (3.24), which may be best understood as a reflection of the respondent profile rather than a signal to reduce the weighting of the component. The high variance across *Policy Alignment* (3.47), *Recovery Ecosystem* (3.47), and *Accessibility and Affordability* (3.59) similarly may be best understood as reflecting the diversity of institutional contexts in which the Matrix would be applied. The Matrix is designed to accommodate this variation and the relevance of each component will differ by geography, peril and asset type.

Most respondents did not identify a missing component, and respondents broadly confirmed cross-geography and cross-peril applicability, noting that Green descriptors may need calibration for different development contexts.†

Full validation data is in the Methodology report, available as an accompanying document to this report.

† The survey findings reflect current profile limitations: greater representation from underwriting and risk appetite functions, from practitioners in EMDE markets, and from non-insurance stakeholders including policymakers, development finance institutions and civil society organisations. The current findings should be interpreted as reflecting the perspectives of a sustainability and ESG-oriented, advanced economy insurance cohort rather than as representative of the full range of institutions.



Section 3

Piloting the Matrix

3.1. Illustrative worked examples

This section presents two illustrative examples, drawing from submissions during the pilot exercise, and is intended to demonstrate how the Matrix functions in practice.‡ In total, ten submissions were received, ranging from floods in Tenbury Wells and Hull, to wildfires in Yorkshire, to agriculture in Sub-Saharan Africa. Piloting the Matrix with these submissions was critical for validating the components of the Matrix, as well as its usability and applicability across a range of scenarios. In this section, we illustrate two worked examples of the Matrix, focused on Los Angeles wildfires and floods in Hull.

3.1.1. Wildfires in Los Angeles

The Los Angeles example was aggregated across four independent submissions from different institutions. The aggregated view synthesises these submissions into a single Matrix, using the majority rating for each component where consensus exists and flagging contested components explicitly. Aggregation surfaces both where expert judgement converges and where it diverges. These examples demonstrate how the Matrix performs as a collective diagnostic and communication tool when multiple institutions contribute to an assessment.

Consensus	Majority with dissent	Contested
		
Solid filled dot. All submissions agree.	Solid inner dot (majority view) with outer ring in the dissent colour. The signal is the majority view, but the ring signals that a minority interpretation exists.	Split dot showing both colours in equal halves. No majority view.

‡ The content has not been independently verified and should not be read as a definitive characterisation of any market, geography or peril. It does not represent the views of CISL, ClimateWise or the Working/Advisory Groups. Individual submissions reflect the professional judgement of the completing institution at the time of completion, and aggregated examples represent a synthesis of multiple submissions rather than a consensus position.

Los Angeles – Wildfires

Scope: Residential & commercial property **Horizon:** 2025–30

Overall status	Most urgent component	Priority quick win
Amber Structurally constrained. Physical resilience and accessibility are binding Red conditions; remaining components are Amber or contested. No component is Green.	Physical Resilience Binding Red Declining for the last 20 years	Implementation of the Insurance Institute for Business & Home Safety (IBHS) Wildfire Prepared Home standard Developers, insurers, homeowners

Readiness Component	Status	Trend	Pathways to Green
Data & Modelling Risk data availability and quality Contributory	Amber Modelling has improved but remains less mature than other perils; vulnerability data is a key gap	↑ Improving	Open public data-sharing on risk and claims; digital twins to show impact of resilience measures State government · Data providers · Academia · (Re)insurers · Developers
Physical Resilience Asset and location resilience Binding constraint	Red Assets highly vulnerable; continued development in high-risk areas	↓ Declining	Restrict new development in high-risk areas; property-resilience measures including via Build Back Better programme Local planners · Developers · (Re)insurers · Homeowners
Policy Alignment Laws, regulation and planning Binding constraint	Amber Strategy permits forward-looking models; building standards improving for new build but not existing stock; pricing distortions	↑ Improving	Expand Chapter 7A California Building Code / Wildland Urban Interface Standards across a wider area of Los Angeles and to existing buildings (not only new builds) State government · (Re)insurers

Market Capital & Capacity Capital depth and availability Binding constraint	Red / Amber Industry capital exists but over 50% of 2025 losses were uninsured or underinsured; FAIR (Fair Access to Insurance Requirements) Plan carrying concentrated risk	↓ Declining	Reduce dependence of the FAIR Plan and encourage resilience measures by reflecting in premium; financiers to support with investing in resilient housing development (Re)insurers · Government · Banks
Stakeholder Awareness & Financial Literacy Risk awareness and trust Contributory	Amber Risk awareness is high but does not translate to preparedness; institutional trust severely damaged by post-wildfire litigation	↑ Improving	Collaboration between the government, local community, insurers and financiers to identify shared solutions; wildfire risk labels use (Re)insurers · Government · Banks · Local community
Accessibility & Affordability Coverage reach and cost Contributory	Red / Amber Insurance increasingly expensive, conditional and limited in scope; growing reliance on surplus lines and FAIR Plan; coverage gaps exclude key perils	↓ Declining	Subsidised premiums linked to resilience upgrades, better modelling and avoiding new properties in high-risk areas (Re)insurers · Government · Banks · Homeowners · Developers · Data providers
Recovery Ecosystem Post-loss reinstatement capacity Contributory	Amber Early physical recovery effective; legal and claims resolution and permitting of rebuilding severely strained; thousands of disputed claims; regulatory investigations ongoing	→ Stable	Parametric insurance to fund recovery quicker; Build Back Better programme; permitting department able to permit and facilitate rebuilding (Re)insurers · Government · Developers

3.1.2. Floods in Hull

The Hull example represents the completed Matrix as submitted by a single institution group for a scenario of their own choosing.

Hull – Flood

Scope: Residential and commercial building **Horizon:** 2007-2027

Overall status	Most urgent component	Priority quick win
Amber Significant flood defences have been built since the floods in 2007, with a comprehensive local flood strategy, Living With Water. But challenges remain relating to continued surface water risk and a lack of a unified view of risk.	Physical Resilience Flat and low-lying areas could see thousands of properties affected by surface water flooding, but low depths make it cost-effective to defend properties via property flood resilience (PFR). Improving in the last 20 years due to installed adaptation measures	Greater transparency in modelling to improve awareness and planning Environment Agency, Local authority, (Re)insurers

Readiness Component	Status	Trend	Pathways to Green
Data & Modelling Risk data availability and quality Contributory	Amber Still gaps and disagreements, despite being one of the most heavily modelled areas, with a complex intersection of coastal, river, and surface water risk	↑ Improving	Address data gaps in public maps and the national flood risk assessment (NAFRA) Modellers; Environment Agency; Local authority
Physical Resilience Asset and location resilience Binding constraint	Amber Has improved significantly since 2007 due to installed defences, but is still vulnerable due to surface water and the confluence of risks. Well protected against storm surge, though there are disagreements if they are sufficient for a major event	↑ Improving	Have installed significant flood defences, river defences, tidal barrier; surface water remains a challenge due to the extent of potential flooding in flat geography (any flooding would affect many homes) Local authority; Environment Agency; Department for Environment, Food and Rural Affairs (Defra)

Policy Alignment Laws, regulation and planning Binding constraint	Amber The national framework sets a baseline but gaps remain in flood resilience. Proactive authorities like Hull can address these through clear planning conditions, but stronger national policy is needed to better support resource-constrained areas	→ Stable	Investment in flood defences and strict planning could support a Green rating in Hull. However, the authority has had to apply consistently tight controls to close national policy gaps and deliver resilient outcomes. Local authority · Environment Agency · Developers
Market Capital & Capacity Capital depth and availability Binding constraint	Amber Has improved significantly, but commercial properties are still at risk. There is still a significant ceding of residential properties to Flood Re	→ Stable	Demonstrating the effectiveness of the above adaptation measures and more accurate assessments of residual risk (Re)insurers · Modellers · Flood Re
Stakeholder Awareness & Financial Literacy Risk awareness and trust Contributory	Amber Hull is one of the most flood-aware places in the UK. And as above, it has improved significantly since 2007, but still has the biggest insurance gap in the country, backstopped by Flood Re	↑ Improving	Unknown - seeming contradiction between physical protection and perception of greater risk Local authority · Environment Agency · Educators · Communities
Accessibility & Affordability Coverage reach and cost Binding constraint	Amber Backstopped by Flood Re, with some gaps persisting in the commercial market and some new builds	↑ Improving Due to FloodRe, excluding new builds	Much has been done, but the impact on pricing has yet to be fully assessed. There is still an opportunity for PFR to manage residual risk (Re)insurers · Flood Re

Recovery Ecosystem Post-loss reinstatement capacity Contributory	Amber City Council has developed multi-agency flood plans, untested by a large event. Build Back Better and PFR capacity still limited across UK	↑ Improving	Local authority to work with insurers to support understanding of risk mitigation. (Re)insurers Loss adjusters Local authorities

These examples would serve as a starting point for engagement, prompting conversation about how the Matrix would be completed in a given context, where assessors agree and disagree, and what actions would follow from a particular pattern of ratings. Crucially, it would help identify pathways to achieving a Green status and support system-wide conversations on strengthening resilience.

3.2. Pathways to Green: what movement looks like

The components of the Matrix are grounded in the premise that uninsurability is not an inevitable outcome but a function of conditions that can be changed. The following examples, drawn from a literature review across geographies and asset classes and building from case studies by the IDF (2025),[3] illustrate what movement along the RAG spectrum in the Matrix looks like in practice.

These examples are retrospective applications of the Matrix; the RAG ratings, trend signals and Pathways to Green are assigned to documented historical cases, rather than completed by an insurer at the time the conditions existed. They outline which levers were pulled, which stakeholders acted and what changed as a result. They are organised by Matrix component and are intended to inform both the application of the Matrix and the design of recommendations for improving insurability.

Data and Modelling

The absence of usable risk data is one of the most direct routes to a Red rating on this component, and its development is one of the clearest Pathways to Green. In Lagos, a collaboration between the State Government, the World Bank, and the UK Foreign, Commonwealth and Development Office (FCDO) produced open geospatial data covering 1,200 urban flood zones. Making this data accessible to insurers allowed them to model risk with sufficient granularity to reduce technical premiums by 25 per cent, enabling the city's first parametric flood policy covering 25,000 households.[3,33]

Lagos State, Nigeria – Urban flood insurance

Scope: Residential **Peril:** Flood **Year:** 2022–23 **Partners:** Lagos State Govt, World Bank, UK FCDO

Data & Modelling	Before	Open geospatial data initiative covering 1,200 urban flood zones	After
Risk data availability and quality	Red No usable geospatial flood data; insurers unable to model urban flood risk; no viable basis for product pricing	Public hazard data made available as a shared resource; government–insurer–development institution partnership to fund and produce the dataset State government Development Financial Institution (DFI) Insurers	Green Risk modelling enabled; technical premiums reduced 25%; city's first parametric flood policy launched, covering 25,000 households

A parametric insurance model developed by Blue Marble demonstrates a technology-led variant of the same lever.[34] By connecting insurance directly to satellite rainfall and temperature data, the model enables automatic payouts when thresholds are breached, removing the need for on-the-ground loss adjustment in markets where that capacity is absent. The same satellite infrastructure simultaneously creates early warning systems, allowing communities to prepare before damage occurs. The EIOPA dashboard, which tracks insurance protection gaps across 30 European countries,[35] represents a different application of the same logic at a systemic level, working by making the gap itself visible and comparable across jurisdictions as a precondition for policy action.

Physical Resilience

The Los Angeles wildfire crisis accelerated a shift towards property-level resilience certification as the route back to insurability. The IBHS Wildfire Prepared Home standard, a science-based, verified designation addressing roof protection, building features and defensible space,[36] provides the mechanism for this shift. It allows homeowners who demonstrate compliance to obtain coverage unavailable to others in the same high-risk area.

A study by the California Department of Insurance and the National Association of Insurance Commissioners found that rebuilding communities destroyed by the 2025 Palisades and Eaton fires to the IBHS standard could reduce projected wildfire losses by one-third,[37] directly improving the Average Annual Loss (AAL) calculations that drive insurer appetite. Several major carriers have committed to writing policies for certified homes, and the experience of Paradise, the first municipality to adopt the standard as its rebuilding benchmark, has seen insurers return to the community, with some residents reporting insurance costs falling by 800 per cent compared to FAIR Plan rates.[37] California also embedded this logic in regulation, requiring insurers to adjust rates to account for wildfire resilience investments,[38,39] aiming at a direct financial incentive that catalyses changes in insurer behaviour, regulatory design and homeowner investment simultaneously. This illustrates how a credible property-level resilience standard can move a market from Red towards Amber on *Physical Resilience*.

Paradise, California – IBHS Wildfire Prepared Home standard

Scope: Residential **Peril:** Wildfire **Partners:** IBHS, CA Dept of Insurance, FEMA, local govt

Physical Resilience	**Before**	**IBHS Wildfire Prepared Home certification as mandatory rebuilding benchmark**	**After**
Asset and location resilience	Red Area-based risk classification driving blanket insurer withdrawal; no mechanism to distinguish resilient properties from vulnerable ones within the same zone	Property-level resilience certification linked to insurer discounts and FAIR Plan exit pathway; adopted by Paradise as mandatory rebuilding standard post-Camp Fire IBHS State & local govt Homeowners & community	Amber Insurers returned; some residents saw costs fall 800% vs FAIR Plan; community-wide adoption reduces AAL by one-third

Policy Alignment

Regulatory frameworks can function as a force multiplier to insurability. Florida offers an example of regulation acting as a resilience lever. The Federal Emergency Management Agency (FEMA) estimates that Florida's building codes help the state avoid more than US$1 billion in annual losses across more than one million structures, US$911 million associated with hurricane winds and US$152 million with floods.[40]

Where building codes are enforced, they demonstrably reduce per-structure loss and this directly supports the economics of *Market Capital and Capacity*. However, building codes do not address where development occurs. A scenario in which Florida also constrained new development in the highest-exposure coastal zones, for example, would move *Policy Alignment* further towards Green.

Florida, USA – Resilience building codes

Scope: Residential & commercial **Peril:** Hurricanes and floods

Policy Alignment	Before	Risk-informed building code reform	After
Laws, regulation and planning	Red Building codes inadequate for hurricane risk; widespread structural failures in Hurricane Andrew (1992) exposed systemic underbuilding across the state	Post Hurricane Andrew legislative reform required roofing, structural and opening protection standards; codes enforced through planning approvals and development conditions State government FEMA Developers	Amber FEMA estimates codes avoid US$1bn+ in annual losses across 1m+ structures, US$911m from hurricane winds and US$152m from floods, sustaining private market viability

Chile demonstrates what proactive regulatory design can achieve. A tax deduction for catastrophe insurance premiums and resilience investment drove household insurance penetration from 45 per cent to 65 per cent, while businesses increased capital expenditure on retrofit by 18 per cent.[3] This represents movement from Amber to Green on both *Policy Alignment and Accessibility and Affordability* achieved through a fiscal instrument

On the other hand, policy misalignment, combined with increasing exposure, is placing increasing strain on insurability. Looking at a past example of California's regulatory framework, Proposition 103 restricted the use of forward-looking catastrophe models in assessing wildfire risks, limiting insurers' ability to account for rapidly evolving hazards.[41,42] This constraint is becoming increasingly untenable as risk intensifies. California's 2025 fire hazard map indicates a dramatic expansion of high-risk areas, with land classified as 'high' or 'very high' hazard growing by 168 per cent since 2011.[43,44] Compounding these pressures, inflation and rising rebuilding costs further strained the market. Between 2022 and 2023, seven of the twelve largest insurers paused or restricted new business in the state.[45] As private market capacity contracted, reliance shifted to the state's insurer of last resort, the FAIR Plan, which has seen its exposure increase by 230 per cent since 2022.[7] Regulatory reforms in 2025, which allow the use of forward-looking models, are expected to improve market conditions by enabling risk-based pricing, supporting expanded coverage and promoting greater rate stability.[46]

California – Proposition 103 and pricing constraints

Scope: Residential & commercial **Peril:** Wildfire **Period:** 2002–24

Policy Alignment

Laws, regulation and planning

Before

Amber

Insurance market broadly functional; Proposition 103 (1988) requires prior approval for rate changes using historical data only, a constraint that was manageable when wildfire risk was stable

Historical data mandate prevents forward-looking risk pricing as climate shifts loss distribution upward

As wildfire frequency and severity increased materially, premiums calibrated to historical data chronically under-reflected actual risk; insurers could not price adequately and remain competitive; the choice became: absorb losses or withdraw

- State government
- FEMA
- Developers

After

Red

Regulatory framework prevents risk-reflective pricing; seven of California's top twelve insurers limited new policies or withdrew renewals by 2022

Market Capital and Capacity

Regional risk-pooling mechanisms demonstrate how shared capital structures can move markets from Red (where no appetite or reinsurance capacity exists) towards Amber or Green by aggregating risk across geographies and reducing the cost of capital for individual domestic insurers.

The African Risk Capacity,[47] the Caribbean Catastrophe Risk Insurance Facility[48] and the Southeast Asia Disaster Risk Insurance Facility[49] represent three regional variants of this model. By pooling sovereign risk across multiple countries, these facilities access international reinsurance markets at a scale that individual governments or domestic insurers cannot, reducing premium costs and increasing the reliability of post-disaster payouts. They also build domestic insurer capacity over time by bringing local participants into structures they could not independently capitalise.[3]

Southeast Asia – Disaster Risk Insurance Facility
Scope: Sovereign risk **Peril:** Multiple

Market Capital & Capacity	Before	Regional pooling aggregating sovereign exposure across multiple countries	After
Capital depth and availability	Red Individual country risk too concentrated to attract international reinsurance capital; domestic insurers unable to independently capitalise adequate coverage	Pooled structures access international reinsurance markets at a scale individual governments cannot; reduce premium costs, increase reliability of post-disaster payouts and build domestic insurer capacity over time Development financial institution Government (Re)insurers Capital markets	Amber Participating countries access reinsurance capacity previously unavailable to them

Stakeholder Awareness and Financial Literacy

The Philippines case below demonstrates the potential of targeted public awareness campaigns to shift a component from Red towards Amber. With insurance penetration below 2 per cent, a joint campaign between the national disaster agency and insurers drove a 40 per cent increase in understanding of insurance products, with a significant accompanying rise in enrolment.[3] The critical feature of this intervention was the partnership between a government agency that has reach and public legitimacy, and insurers with product knowledge.

The Philippines – Joint campaign for public awareness
Scope: Residential **Peril:** NA

Stakeholder Awareness & Financial Literacy	Before	Joint public awareness campaign between national disaster agency and insurers	After
Risk awareness and trust	Red Insurance penetration below 2%; widespread lack of awareness of insurance products and their role in recovery	Government agency provided public legitimacy and community reach; insurers contributed product knowledge and distribution; neither actor could have achieved the same outcome independently National disaster agency Insurers Customers	Amber Understanding of insurance products rose by 40%; enrolment rose significantly; institutional trust improved though gaps remain

Accessibility and Affordability

Several examples illustrate pathways from Red or Amber to Green on this component, using different combinations of product innovation, distribution and subsidy.

Weather-index microinsurance for smallholder farmers in Kenya, with average premiums of US$3–5 per season and automatic payouts triggered when rainfall thresholds are breached,[3] shows how parametric product design can bring coverage within reach of populations for whom conventional insurance may be inaccessible. A similar model in Gujarat, India, covering 50,000 women in informal trades against extreme heat,[15] demonstrates the applicability of parametric approaches to non-traditional perils and underserved populations.

India's national crop insurance programme offers a complementary approach: a government subsidy of 50 per cent of premiums, combined with discounts for risk-reduction practices, doubled enrolment.[3] This illustrates the lever of premium subsidy tied to behaviour change, moving the cost of coverage within reach while simultaneously incentivising the risk reduction that improves the underlying insurability of the portfolio.

Vanuatu's climate-resilience premium-subsidy scheme, delivered through the United Nations Development Programme (UNDP) and the Pacific Community, tied donor-funded premium support to the adoption of cyclone-resilient fishing gear and sustainable practices. Uptake tripled within a year, and the improved enrolment itself generated better risk data, allowing insurers to refine their underwriting.[3] This feedback loop, in which expanded coverage improves the data environment that supports further coverage, is a practical illustration of the resilience dividend described in the *1. Why this matters* section of this report.

Vanuatu – Climate-resilience premium subsidy

Scope: Fisheries sector **Peril:** Cyclone **Partners:** UNDP, Pacific Community (SPC), insurers

Accessibility & Affordability	**Before**	**Donor-funded premium subsidy tied to adoption of cyclone-resilient practices**	**After**
Coverage reach and cost	Red Insurance unaffordable for fishing communities; no viable market; cyclone losses entirely uninsured	Concessional premium support conditional on adoption of resilient gear and sustainable practices; creates a link between behaviour change and affordability National government Regulators Insurers	Amber Uptake tripled within one year; improved enrolment generated better risk data, enabling insurers to refine underwriting, feeding back into Data and Modelling

Recovery Ecosystem

Flood Re's Build Back Better (BBB) provision in the UK demonstrates how post-loss conditions can be structured to improve not just the speed of recovery but also the underlying insurability of the rebuilt asset.[50]

By enabling insurers to fund reinstatement to a higher resilience standard than the pre-loss asset, the scheme moves properties from a position of recurring loss towards one of reduced future exposure. Such intervention on the top 5 per cent of most at-risk properties is expected to result in a 33 per cent reduction of AAL.[51] This improves the economics of continued coverage and illustrates how *Recovery Ecosystem* can feed back positively into *Physical Resilience*. A Green component in this case would entail mainstreaming BBB through insurers, ensuring that any reinstatement systematically considers the introduction of flood resilience measures.

BBB is one part of this component. Improving *Recovery Ecosystem* systematically requires co-ordination across the different parts of the delivery chain. The FloodReady Review brings together government, insurers, lenders, local authorities and communities around a ten-year action plan to make property flood resilience a normal part of how homes and businesses are repaired.[52]

United Kingdom – Flood Re Build Back Better

Scope: United Kingdom **Peril:** Floods

Recovery Ecosystem	Before	Flood Re Build Back Better provision enabling reinstatement to higher resilience standard	After
Post-loss reinstatement capacity	Amber Claims handling functional but reinstatement to pre-loss standard leaves properties equally vulnerable to future events; repeated losses erode insurer appetite and drive premium increases	Public–private partnership enables insurers to fund reinstatement incorporating flood-proofing measures, going beyond like-for-like replacement to reduce future exposure Flood Re Construction firms Insurers	Green Reinstated properties carry lower expected future losses; households face reduced risk of repeat damage

Patterns across the cases

The case study evidence reveals patterns that have direct implications for how the Matrix is applied and how its levers are designed.

Improvements in one component frequently unlock others. The Lagos data initiative reduced premiums and directly enabled the city's first parametric product, improving *Data and Modelling* and *Accessibility and Affordability* through a single intervention. The Vanuatu subsidy scheme generated enrolment data that fed back into underwriting. Florida's building codes reduced physical vulnerability in ways that directly sustained *Market Capital and Capacity*. The most efficient interventions address component interdependencies rather than components in isolation.

Deterioration cascades. California illustrates the reverse dynamic: regulatory constraints on risk-based pricing (*Policy Alignment*) drove insurer withdrawal (*Market Capital and Capacity*), which increased reliance on the FAIR Plan (*Accessibility and Affordability*), which exposed the state to systemic fiscal risk. A single component failure can cascade across the components of the Matrix.

Success requires multi-stakeholder collaboration. Every case examined in this section involves actors from across the ecosystem: government agencies, insurers, development finance institutions, communities, regulators and capital markets appear in the stakeholder column of case studies that achieved meaningful status movement. No single actor holds all the levers required to move a component from Red to Green. The stakeholder column of the Matrix may therefore be read not as a list of actors who might contribute but as a map of the partnerships that are necessary and where the most consequential gap between current engagement and required collaboration lies.

Section 4

Call for action

There are two key next steps for the Matrix: (i) running a series of trials to inform further development, and (ii) advancing research in areas where additional development is required.

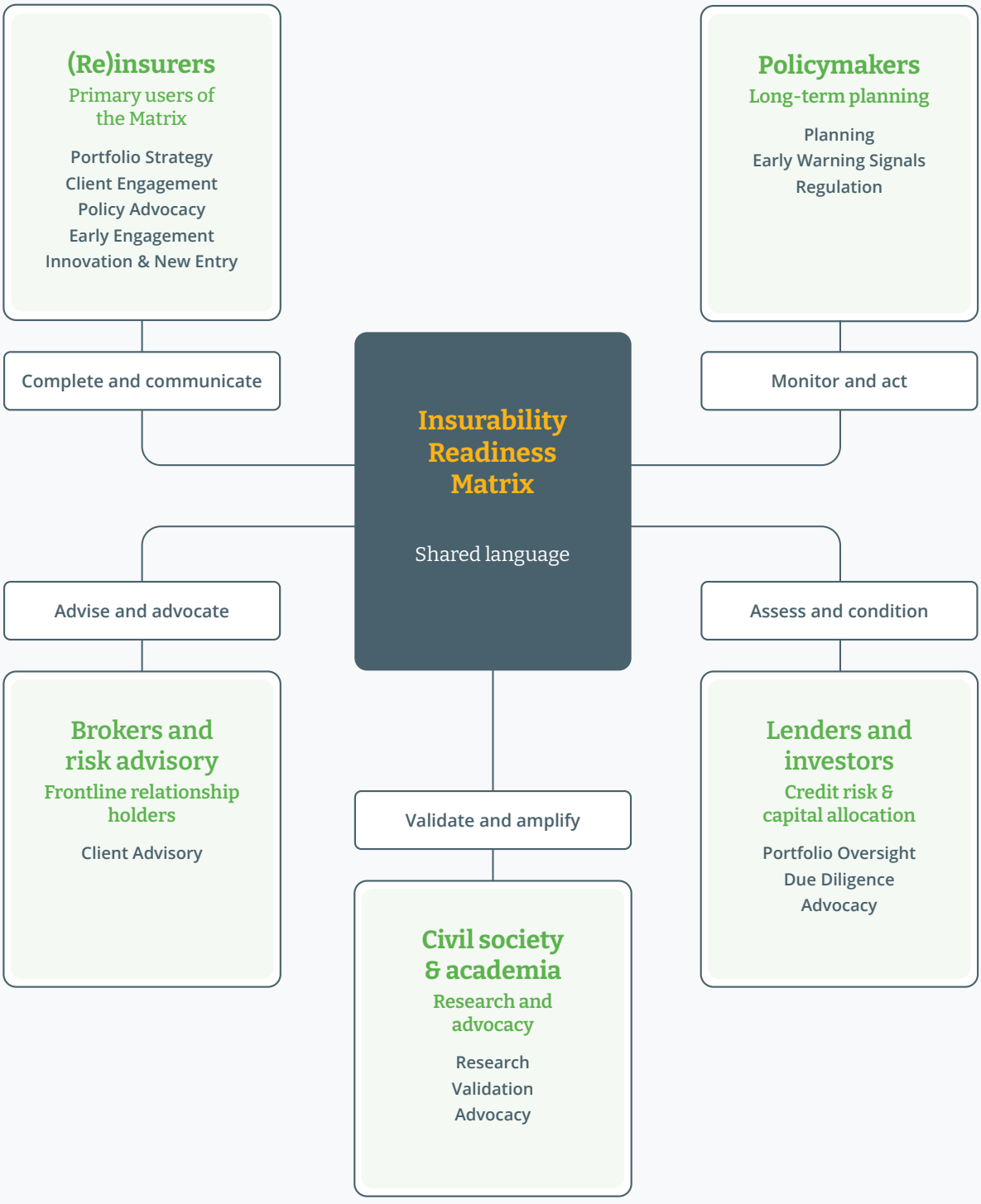
This report presents the first version of the Matrix. It will improve over time through practical use. Given the urgency of the insurability challenge, and the need for transparency and collaboration, we are publishing this early version now. In this section, we outline three key areas where additional research is required. In the meantime, however, this is a tool which can already be informing real conversations between the stakeholders who assess insurability and those who determine it. **We are therefore inviting stakeholders to partner with ClimateWise to design and run a programme of structured trials as part of this process.**

This trial phase will focus on identifying challenges on insurability in particular communities and sectors before the point of market withdrawal is reached. A practical research programme could identify key regions in the UK, Europe and North America where multiple components are rated Amber with declining trends, and track whether targeted policy intervention, informed by Matrix assessments, improves conditions over a defined period. This would also provide further examples to enhance the Matrix's signalling function, feeding into future iterations of the tool.

4.1. Detailed trial phase

This section sets out how different stakeholder groups can engage with the Matrix and identifies priorities that will inform this next trial phase.

Figure 5: How different stakeholders can engage with the Matrix



Stakeholder	Primary benefit	Key applications
(Re)insurers	A shared language to assess and communicate pressure on insurability, internally and externally, and drive the conversations that maintain insurability before conditions become critical	• Portfolio strategy assessment • Client engagement • Policy advocacy • Early project engagement • Product innovation and new market exploration
Policymakers	A consolidated, accessible view of how the insurance industry assesses the availability of current and future coverage for specific geographies and perils	• Forward-looking development planning • Early warning monitoring • Regulation and incentives design
Brokers and risk advisory	A diagnostic basis to support clients to understand the degree of insurability risk, which conditions are primarily driving this risk, as well as what can be done	• Client advisory
Lenders and investors	Connects insurability signal to portfolio and credit risk assessment to produce resilience-adjusted credit risk	• Portfolio oversight and credit assessment • Due diligence • Policy engagement
Civil society and academia	A systemic framing for community advocacy and research opportunities	• Community advocacy • Demand-side research • Independent validation

For (re)insurers

- **Portfolio-level strategic assessment:** The Matrix can be used to assess insurability conditions across geographies, perils and asset classes. When applied on a regular cycle, the Matrix enables identification of deteriorating conditions before they reach the point of market withdrawal. It also builds the internal evidence base needed to engage boards and leadership on emerging exposures.
- **Direct client and portfolio holder engagement:** Completed Matrix assessments can be used as the basis for targeted, solution-focused engagement with clients and portfolio holders, to inform the structuring of a practical resilience action plan.
- **Policy engagement and advocacy:** The Matrix can serve as the basis for structured engagement with governments and regulators, translating industry assessment to non-specialist audiences. By enabling a shared insurability language, the Matrix supports (re)insurers to easily communicate industry challenges; this has potential to be particularly powerful where industry insights are sought in a consistent format (for example, the framework could be used as the basis of a 'Call for Evidence' by governments).
- **Early stakeholder engagement on development:** The Matrix provides a structured basis for earlier engagement between insurers and developers to allow insurability constraints to be identified and addressed in the project design stage. This requires proactive engagement from developers and a corresponding willingness from insurers to participate early in the development process.
- **Product innovation and new market entry:** The Matrix provides a structured basis for identifying where new insurance products are needed and what conditions would need to be in place for them to be viable.

For policymakers and regulators

- **Forward-looking development planning:** The Matrix can be embedded in project appraisal and development planning as a forward-looking insurability screen, identifying, before assets are built, whether the physical, regulatory and market conditions exist to support long-term coverage.
- **Early warning and pre-emptive intervention:** Policymakers can use the Matrix output as a monitoring tool (with a particular focus on the trend column) to intervene with targeted policy action before the market reaches the point of withdrawal. The EIOPA protection gap dashboard demonstrates that this monitoring function is feasible at scale; the Matrix has the potential to provide further diagnostic depth alongside this.
- **Regulation, policy and incentive design:** The Matrix can function as a complementary screening tool within policy development and consultation processes, helping to identify which proposed policy changes are likely to affect insurability conditions and in what direction, and how incentives might be prioritised to support.

For brokers and risk advisers

- **Client advisory:** By completing a Matrix assessment for a client's key geographies and asset classes, a broker can identify which components are driving insurability pressure, what the client can do to reverse that trajectory and which interventions require engagement with government, regulators or infrastructure providers rather than the client alone.

For lenders, investors and development finance institutions

- **Portfolio oversight and credit risk monitoring:** Understanding insurability status helps lenders to better understand the risk within their portfolio. Using the Resilience-Adjusted Credit Risk framework, lenders can demonstrate how insurability, along with adaptation conditions, can be integrated into credit risk assessment in a structured way.[53] This supports insurers and lenders to better work together to identify underlying vulnerabilities, and to engage jointly with asset owners and policymakers around interventions that would maintain both insurability and bankability over the asset lifecycle.
- **Due diligence and investment conditions:** For lenders and investors, the Matrix provides a structured insurability assessment that can be embedded in due diligence processes, ensuring that the long-term insurability of proposed assets is considered before capital is committed. Investors can use the same assessment to evaluate whether the risk profile of an asset is consistent with its projected returns over the investment horizon, and to identify which interventions would most effectively protect long-term asset value.
- **Policy advocacy**: Similarly to (re)insurers, lenders and investors can engage in the policy conversations that determine whether assets remain insurable, reinforcing the signal that the same conditions driving insurability pressure are also driving credit and investment risk and impacting overall financial stability.

For civil society and academia

- **Demand-side research:** The current Matrix is validated primarily from the supply side (by insurers assessing insurability conditions). The Matrix could form the basis of further research on demand-side dynamics: how awareness and literacy affect insurance uptake, how trust shapes claims behaviour, how income constraints interact with premium levels, and how community-level social capital affects recovery ecosystem outcomes.
- **Community advocacy:** Civil society organisations working in communities facing insurance withdrawal can use the Matrix to articulate the multi-dimensional nature of the insurability challenge in a particular context. The Matrix's visual approach supports communities that need to engage with policymakers but are unfamiliar with how insurance markets work.

4.2. Focus of further research

This section sets out three research priorities, identified by the initial pilot and workshops, that would most significantly strengthen the Matrix's analytical foundations and extend its reach.

Integrating the Matrix into existing workflows and processes: The pilot and workshop identified multiple routes through which the Matrix can be integrated alongside or as part of existing institutional processes. The next phase of development will focus on trialling these integration routes in practice, working for example with strategic risk functions and brokers to embed the Matrix within their existing processes, test what modifications are needed for each context, and build the guidance and institutional muscle memory that makes adoption sustainable. The goal is to demonstrate, through structured trials, where the Matrix can be used effectively and how those applications can be replicated and scaled. Further, existing innovation platforms such as Lloyd's Lab[54] provide a route for translating Matrix-identified gaps into product development programmes, connecting the diagnostic output of the Matrix to the commercial innovation infrastructure of the market.

Developing a validated aggregation methodology: The Matrix currently produces seven component-level RAG ratings and a summary status based on the completing insurer's expert judgement, weighted towards binding constraints. This approach is honest about its subjectivity but limits the Matrix's utility in two ways: it makes comparison across geographies and over time challenging, since different assessors may weight components differently; and it makes aggregation across multiple submissions difficult to systematise. A validated aggregation methodology would address both limitations by specifying how component ratings combine into an overall insurability signal, making explicit which components are treated as binding, how conflicts between binding and contributory ratings are resolved, and how trend direction factors into the summary alongside status. Developing such a methodology requires both quantitative research, testing proposed weighting schemes against cases where insurability outcomes are known, and governance, including establishing how the methodology evolves and how context-specific calibration is handled. The goal is a methodology that is explicit about its assumptions, tested against observable outcomes, and open to revision, producing a consistent signal that practitioners, policymakers and researchers can use.

EMDE contexts and structural insurability challenges: The Matrix has been developed and validated primarily in advanced economy contexts where the principal insurability challenge is market retreat. In EMDE contexts, the challenge is structural absence: insurance is yet to fully take root, and the conditions required to build a viable market are themselves absent or fragile. While the Matrix has been developed with both developed and EMDE contexts in mind, its strength of application in EMDEs would be extended through further research. This could include co-designing with practitioners, trialling the tool with insurers and development finance institutions operating in high-protection-gap markets, as well as additional conceptual development, primarily recalibrating the RAG descriptors and levers to reflect the structural conditions of markets where informal economies, limited technical capacity and institutional fragility are the dominant constraints.

These next steps point towards a clear vision: an insurability monitoring system that operates at scale, across geographies and sectors, in a manner that is accessible to the full ecosystem of actors. The examples in this report show how quickly insurability can deteriorate when conditions accumulate unchecked, but also how it can improve under the right conditions – usually through cross-sector dialogue. Working together, stakeholders can use the Insurability Readiness Matrix as a shared language to support co-ordinated action on insurability.

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