Safeguarding Home Insurance: Reducing Exposure and Vulnerability to Extreme Weather

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03 **Underpinning drivers of rising insurance challenges**

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04 **Redefining the scope of the problem –**

- A range of stakeholders impact risk of a property throughout its lifecycle
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05 **Innovations, incentives and solutions:** Need for a targeted, prioritized and all-of-society approach to addressing the rising insurance challenge

- A two-tier approach with examples from around the world

Safeguarding Home Insurance: Reducing Exposure and Vulnerability to Extreme Weather –

Forthcoming report, May 7 – https://www.genevaassociation.org/

About the project

Industry collaboration and cross-sectoral engagement

- Advisory Committee
  - 18 GA member companies: ACHMEA, AXA, AXIS Capital, CHUBB, Fidelidade, Generali, Hannover Re, IAG, Intact Financial, Liberty Mutual, Manulife, MAPFRE, Munich Re, Renaissance Re, SCOR, State Farm, Swiss Re, Tokio Marine
  - 9 external partners from insurance associations, think tanks, academia, law, engineering
    - ✓ APCIA, Insurance Council of Australia, Insurance Institute on Business and Home Safety, Intact Centre on Climate Adaptation, London School of Economics, Resources for the Future, Rocky Mountain Institute, Clyde&Co, Worley
- Additional experts from other sectors
  - Climate risk modelling
  - Mortgage and lending sector
  - Regulatory community
  - International organisations

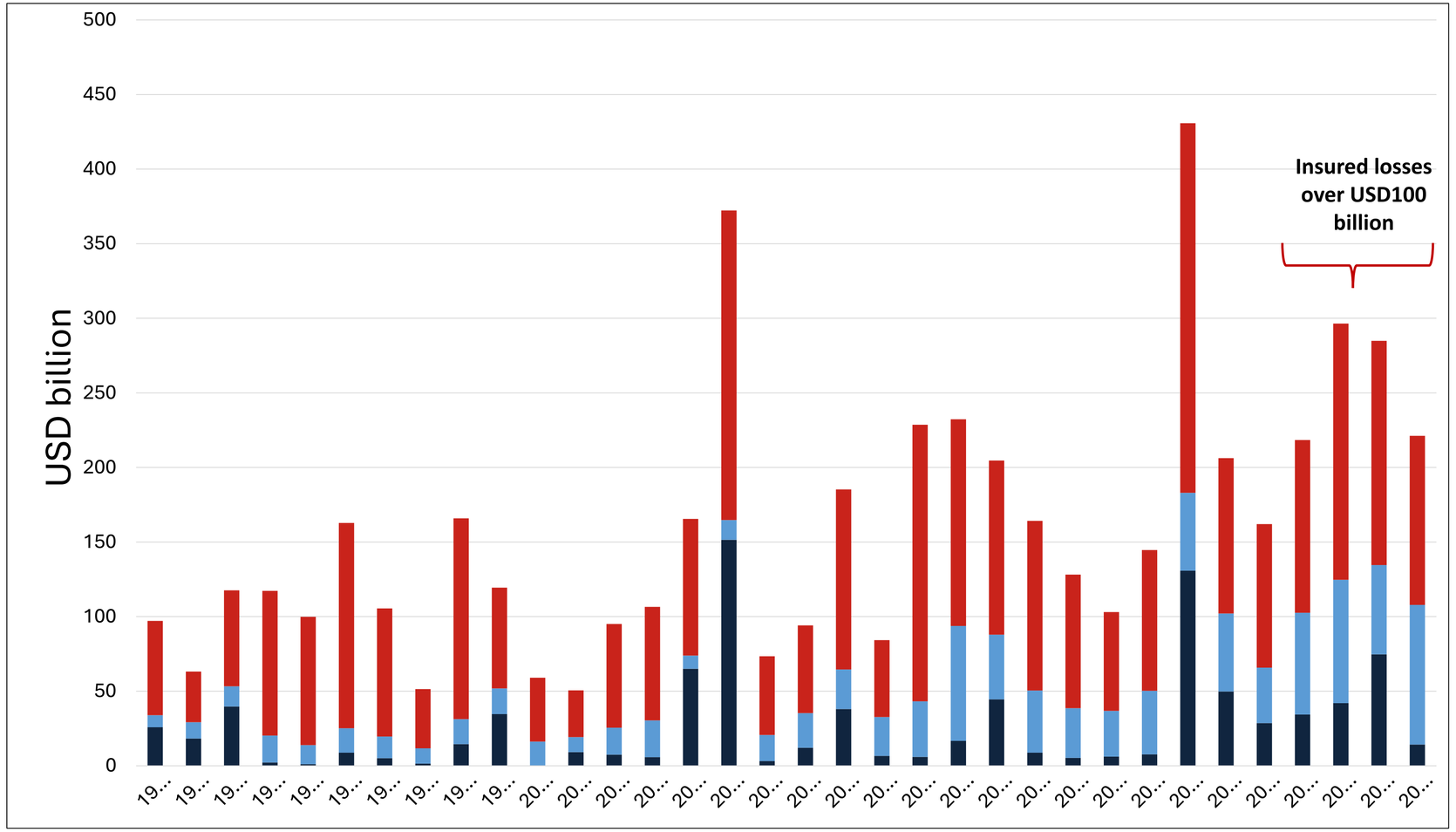
Focus on developed economies with mature insurance markets

- Australia, Canada, the EU, Japan, the UK, the US

Methodology

- Literature review
- 14 technical roundtables
- 1:1 interviews

Economic and insured losses from weather-related extremes are on the rise



Uninsured losses - total weather-related perils

Insured losses - high frequency, low impact perils such as floods, wildfires and convective storms

Insured losses - low frequency, high impact perils such as hurricanes and tyhphoons

- Insured losses account for ~30% of total economic losses. **Recurrent, years of insured losses above USD 100 billion since 2020.**
- **Secondary perils** (e.g. floods, wildfires, convective storms such as tornados, hail) **account for ~55% of total insured losses** (2000–2023).
- According to Munich Re, insured losses in 2024 estimated at USD140 billion, with secondary perils around 50%.

Source: Produced by The Geneva Association based on Swiss Re Institute, 2024 and additional data from Munich RE NATCARSERVICE.

Rising insurance challenges

Risk-based insurance pricing

Insurance industry has stressed the need for risk-based pricing, which gives a critical signal for the level of risk that needs to be reduced or prevented, protects the financial health of re/insurers, promotes fairness among homeowners.

Availability

Regions where insurers have been forced to limit or cease offering insurance, mainly in response to regulatory pressures to cap premiums or delays with repricing:

- **US:** ~15% of insured properties or ~2% of USD 50 trillion housing market
  - Key states: California, Florida, Arkansas, Colorado, Louisiana, Minnesota, Oklahoma, South Carolina, South Dakota, Texas, Washington
- **Canada**: Quebec and 10% of households across the country with high flood exposure

Affordability

Due to rising premiums linked to risk-based pricing. Significant portion of household gross income in some regions spent on annual insurance.

US:

- Increases between 2020 and 2023: Florida (56%), Louisiana (55%), District of Columbia (51%), Colorado (43%), Utah (42%)
- ~1–2% of household gross income in eight hurricane-prone states is spent on insurance
- Actual risk still underpriced in many states

Australia:

- ~15% of properties pay 8.3% (1 month) or more of gross yearly household income, on annual insurance (reaching extreme pressure)

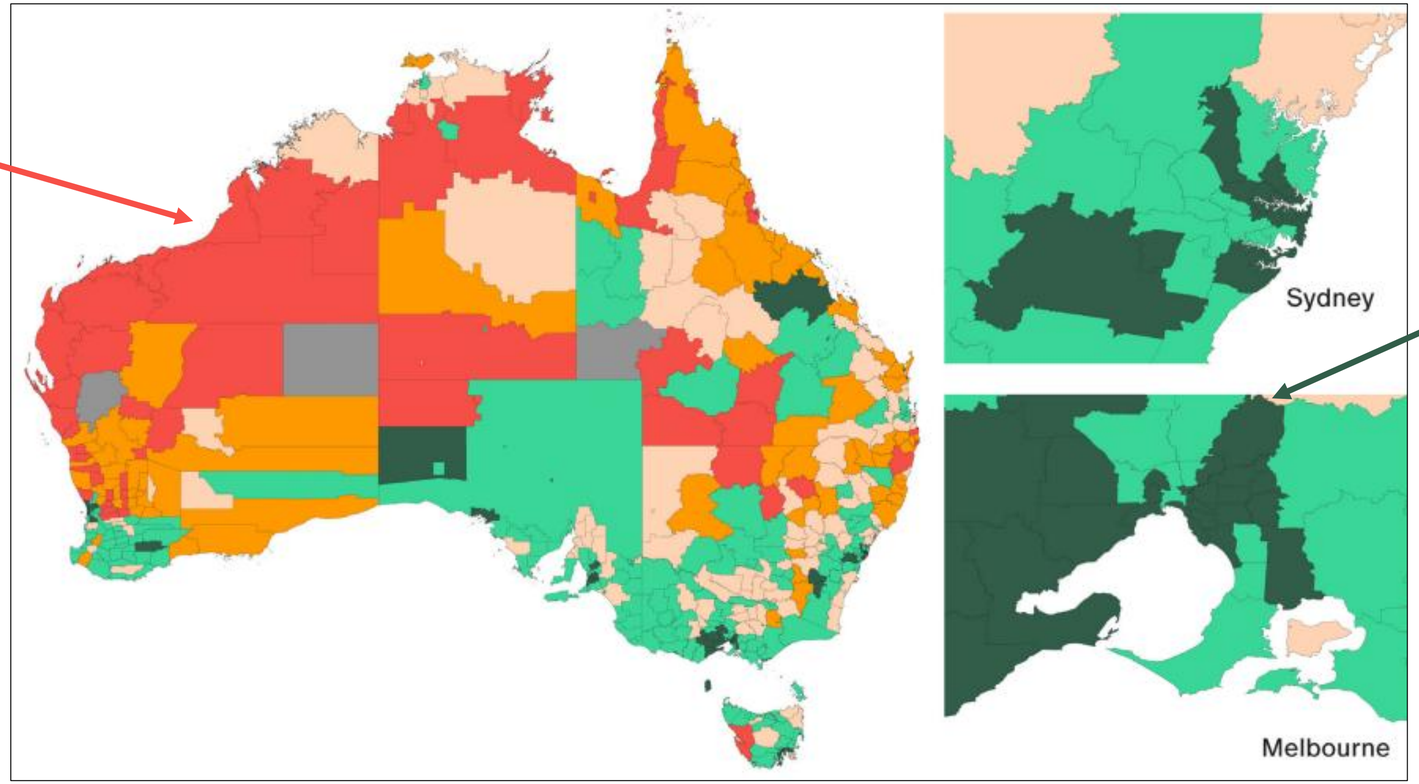
Europe:

- Calls to increase insurance prices to address wildfires

There is an affordability tipping point where homeowners opt out of buying insurance

Australian Actuaries Home Insurance Affordability (AAHIA) index by region

Extreme pressure

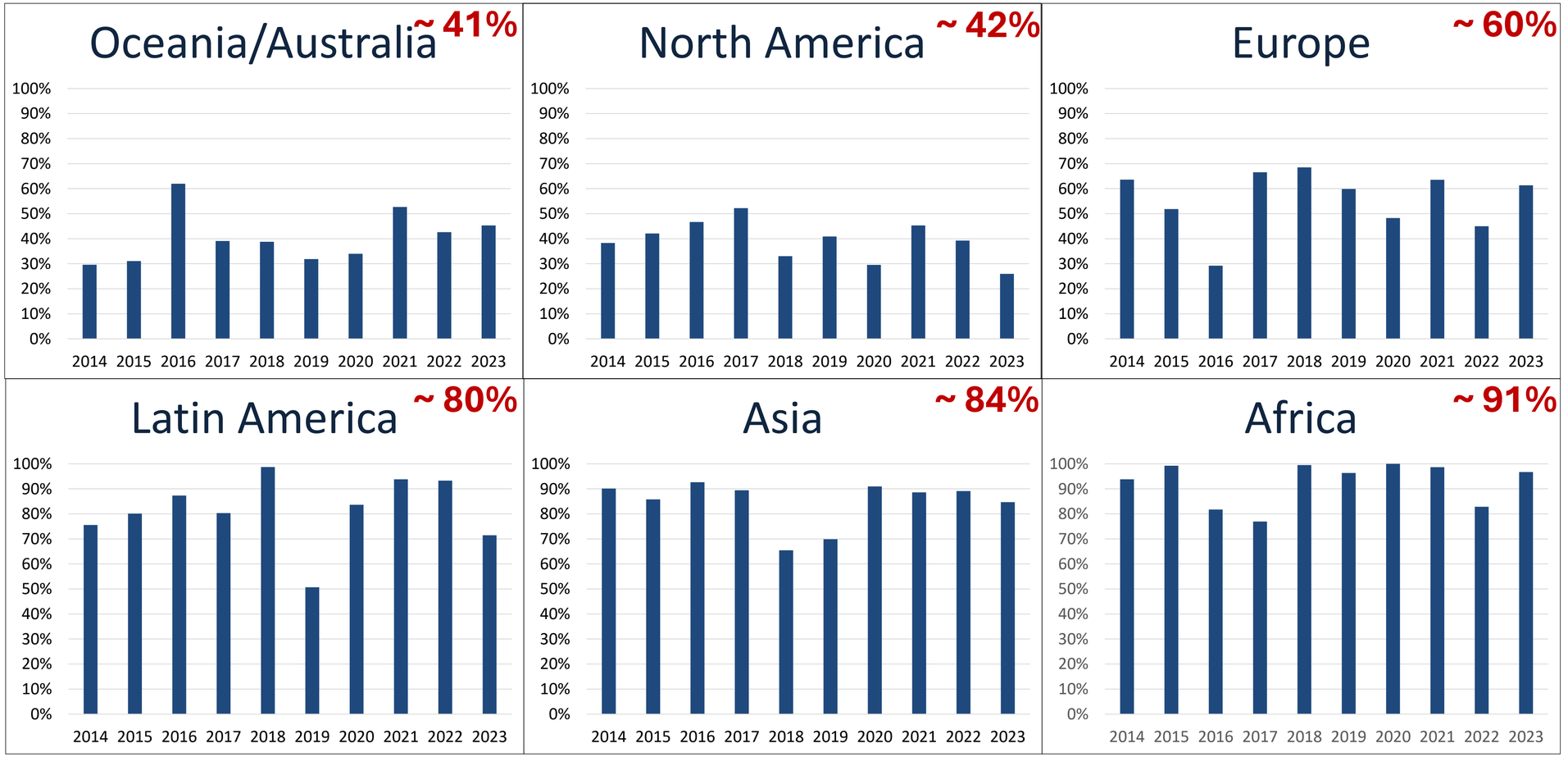


No pressure

In Australia, this is when homeowners pay more than four weeks of gross household income for annual home insurance premiums - they face **extreme insurance affordability pressure** (15% of all households).

Source: Actuaries Institute 2024.

The global protection gap for weather-related extremes averages 70%, with significant regional variation



Underpinning factors - demand side of insurance

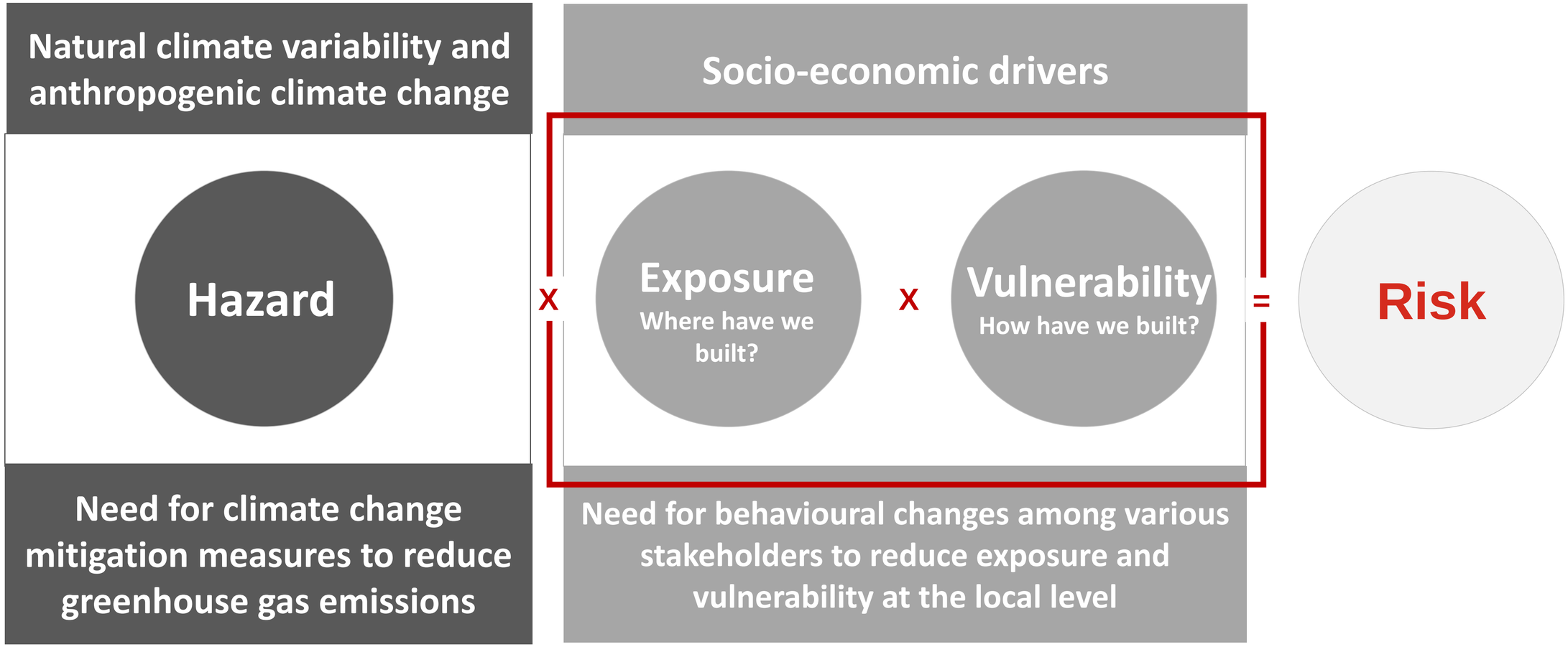
- Low levels of risk awareness, risk perception, and limited access to information
- Reliance on post-disaster government handouts
- Lack of risk management culture and behavioural biases
- Lack of awareness of available insurance solutions/ products and incorrect assumptions of cover
- Complexity of insurance products
- Mistrust
- Unaffordability of the premium

- **Asia and Africa have the largest protection gap.**
- **In North America and Australia signs of protection gap growing due to rising challenges with insurance availability and affordability**

Source: Produced by The Geneva Association based on Swiss Re Institute 2024

Underpinning drivers of rising insurance challenges – Private insurance and government interventions

Beyond intensification of extreme weather, rising exposure and vulnerability and inflation are significantly exacerbating losses



Source: Swiss Re Institute, modified by the Geneva Association

Socioeconomic drivers of rising exposure and vulnerability

Land zoning practices

High concentration of people and assets in hazard-prone zones.

- Population in flood-prone regions: Japan, 29%; EU, 17%; US, 12.5%
- Population in wildfire-prone regions: EU, 67%; Australia, 61%; US, 60%

Building in high-risk areas continues.

- US: New homes in zones prone to hurricanes, wildfires, extreme heat (2023, 57%; 2014, 39%); UK: 8% of new homes in flood-prone areas since 2013; Germany: 1,000-2,400 homes built yearly in flood-prone zones; Canada: +150,000 in flood-prone zones, +220,000 in wildfire-prone zones by 2030.

Outdated building codes

Building codes are updated around every 5 years. But their adoption and enforcement is hindered by many challenges.

Ageing infrastructure

Significant amount of critical infrastructure is aged and at risk due to intensification of extreme weather.

Utilities practices

Lack of regular operational maintenance as well as dated facilities could cause and/or exacerbate disasters.

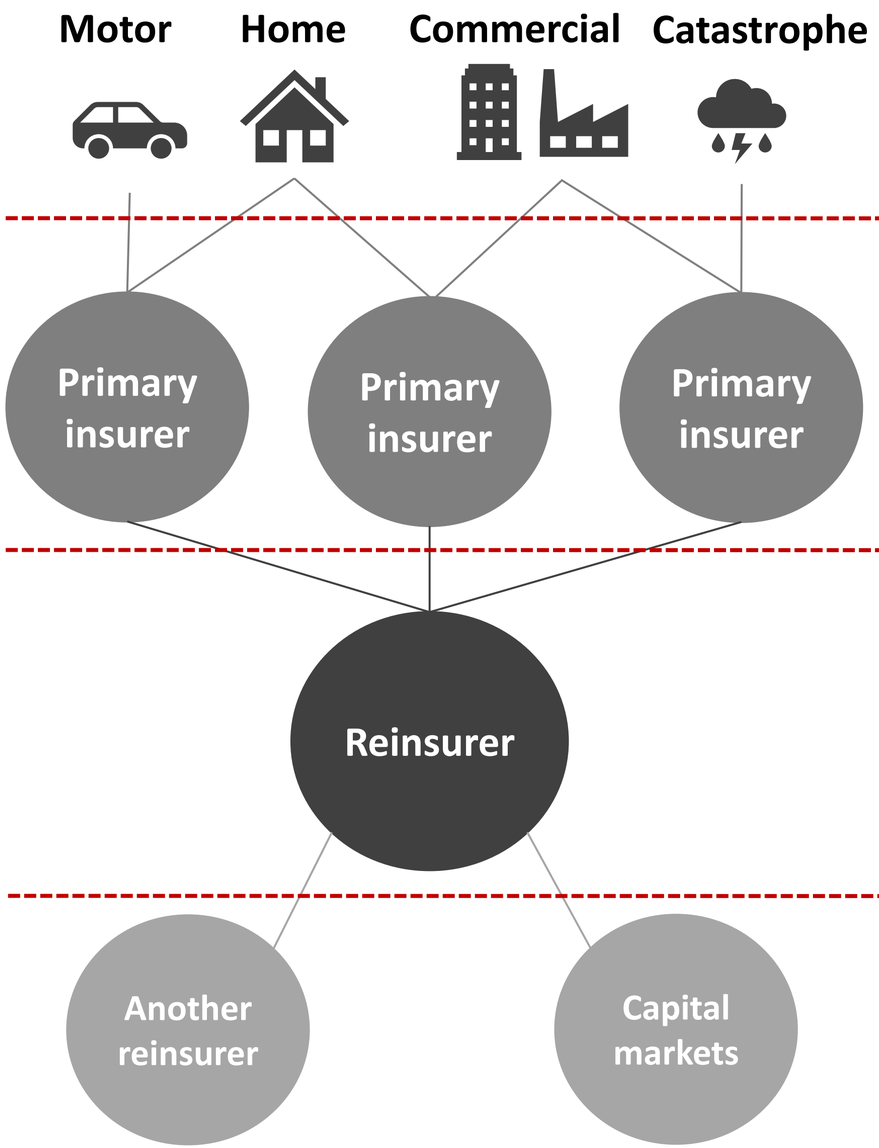
Urbanisation

Urban design and capacities could exacerbate disasters, e.g. inadequate urban drainage systems, densification, concreting, expansion of wildland-urban interface.

Higher costs of rebuilding

Since COVID-19, inflation has led to higher costs of rebuilding: rising supply chain disruptions, labour shortages, higher wages, and tariffs.

Access to affordable insurance is crucial for economic growth and financial stability
How does insurance work?



Management of insured risks:
- Without insurance, financial burden of natural catastrophes falls on homeowners, businesses, and governments.
- They transfer risk to primary insurers by paying a **premium**.

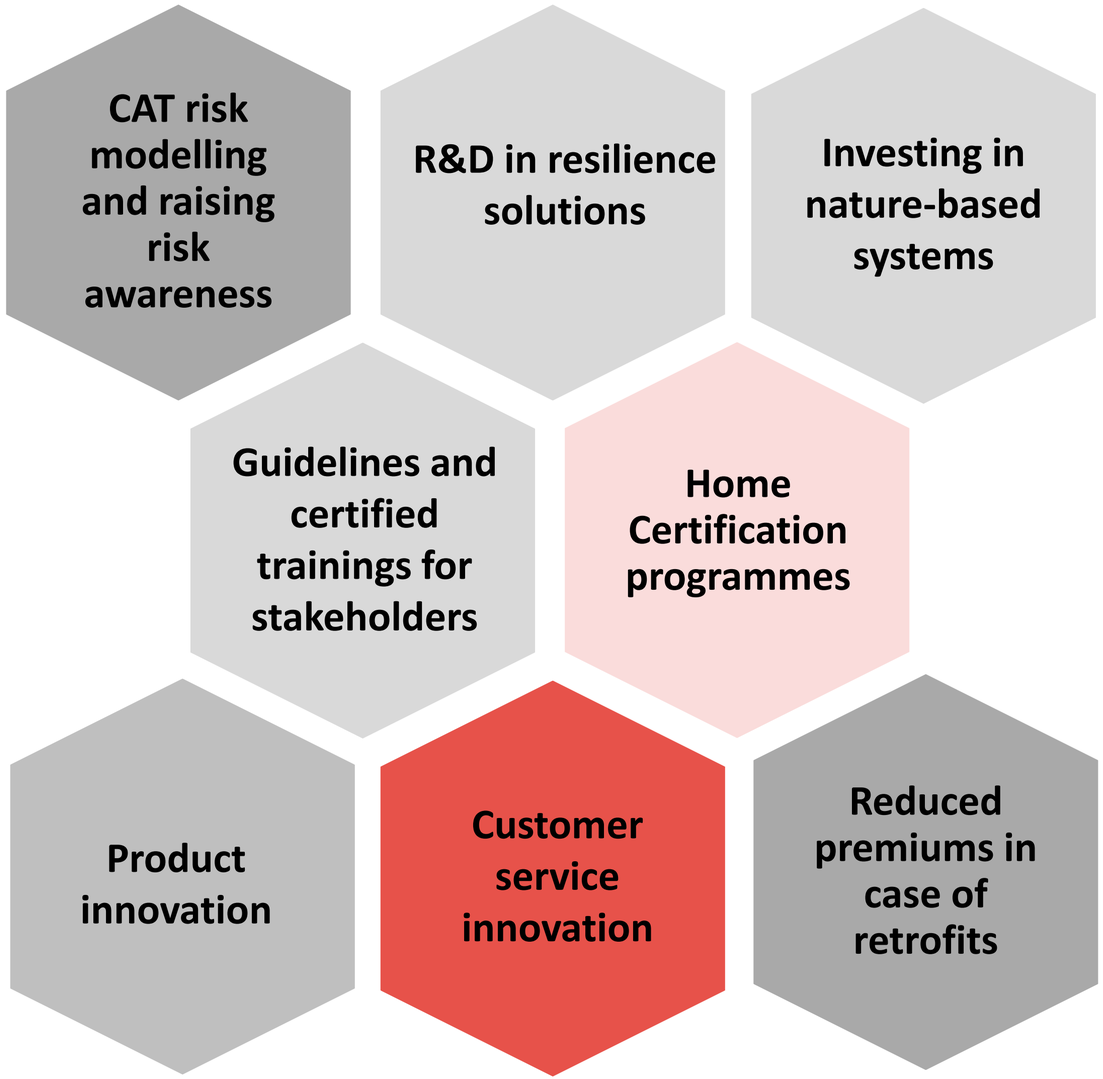
Primary insurers:
- Protect their balance sheet, reduce earnings volatility and make better use of their capital.
- Transfer portfolios of similar risks or large single risks to reinsurers.

Reinsurers:
- Help create appropriate conditions for local insurance companies
- Diversify their portfolio.
- May pass on some of these risks to:
  - ✓ Another reinsurer
  - ✓ Capital markets (through securitisation)

Alternative risk transfer solutions:
- Re/insurers may securitise risk and collect capital through instruments like catastrophe (CAT) bonds.

Source: Swiss Re 2015, modified by The Geneva Association

How are re/insurers responding?



P&C re/insurers do a lot to understand the underpinning causes of rising risks and develop resilience measures; However, they cannot solve the problem alone

Governments intervene in the insurance markets by establishing government-backed insurance schemes

To serve as ‘insurers of last resort’ when capacity of private insurance market is strained

Pros

- Most are **solidarity-based**, ensuring the availability of insurance.
- Pricing typically **does not reflect actual risk**.
- Some have **mandatory** offer or take-up requirements.
- In some regions becoming **‘insurer of first resort’**
- Some provide **incentives but not impact is not demonstrated**:
  - ✓ France (Caisse Centrale de Réassurance) - deductible discount if a ‘Risk Prevention Plan’ available.
  - ✓ UK (Flood Re in time bound) - up to GBP 10,000 for flood-resilient repairs after flood damage.

Cons

- **Homeowners: underinsured**, **continue to live in high-risk areas**, **no incentives** to invest in **retrofits**.
- **Governments:** may face pressure to provide **low-cost premiums**, leading to **taxpayer burden**.
- **Private re/insurance companies:** may have **role undermined** and/or be forced to **cover properties deemed too risky**.
- **Government-backed pools:** may be used as **‘insurer of first resort’**, leading to **challenges with solvency** over time and **crowding out of private insurers**.
- **Addressing rising risks:** Lack of clear time-bound resilience requirements.

Government-backed insurance schemes are not a silver bullet – need for resilience goals with a clear timeline.

Based on review of 14 government-backed insurance schemes around the world

Redefining the scope of the problem – Actions by various stakeholders impact the risk profile at the property during its life cycles and its locality

Stakeholders that impact the risk profile of properties and their locality

- National Governments
- National Building Code Standard Bodies

- State Government Legislature
- Environmental Protection Agencies

- Municipal Governments
- Emergency Services
- Municipal Infrastructure and Utility Operators

- Building Code Enforcement Officers/inspectors

- Homeowners
- Developers
- Builders
- (Sub)contractors
- Inspectors
- Surveyors
- Architects
- Engineers
- Raw Material Suppliers

- Homeowner Associations

- National Emergency Management Agencies
- National Infrastructure Operators
- Environmental Protection Agencies

- State Emergency Management Agencies
- State Infrastructure Operators

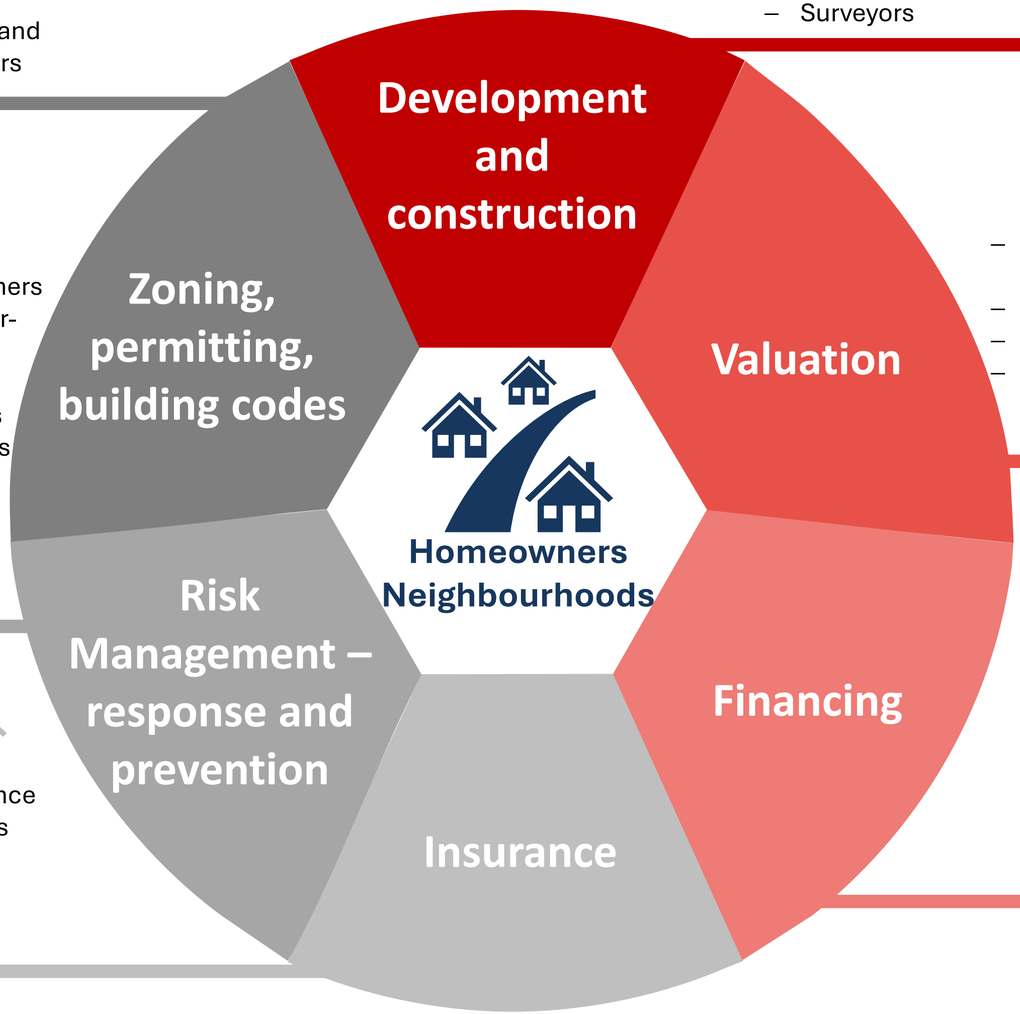
- Municipal Government Emergency Services
- Municipal Infrastructure and Utility Operators
- Homeowner Associations

- Homeowners
- Neighbour-hoods
- Property managers
- Inspectors

- National Government Re/insurance Pools
- Science-based Resilience Research Institutes
- Investors
- Reinsurers

- Primary Insurers
- State-backed Re/insurance pools

- Insurance Brokers



- Real Estate Agents
- Investors
- Appraisers
- Inspectors

- Municipal Governments

- Market Analysts
- Credit Rating Agencies

- National Governments

- Homeowners
- Commercial and Residential Building Owners
- Banks
- Credit Unions
- Appraisers

- Municipal Governments (social housing)

- Home Loan Banks (U.S.)

- National Governments
- Government-Sponsored Enterprises
- Housing Agencies/ Corporations
- Secondary mortgage market investors

Property

Community/ Municipality

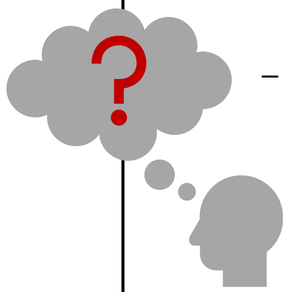
Regional

National

Increased risk information and rising insurance premiums are starting to impact homeowners' decisions

Purchasing a new home

- Traditionally, choice driven by **quality of life** (i.e., access to transportation, employment opportunities, etc.) and **costs of living** (e.g. housing costs, tax burden, etc.)
- But **cost of buying and owning a home is increasingly becoming risk-informed.** For example, in the US, through real estate platforms in partnership with risk modelling firms (First Street with Zillow and Realtor.com; ClimateCheck with Redfin)



Retrofitting existing home

Homeowners who already own a property in high-risk zones need to:

– **Understand their risks**

– Have **access to expert guidance** on key priority actions they can undertake to retrofit their homes to reduce the risks

– Have **incentives to invest** in retrofitting their homes as this can be costly

- In general, **rising insurance premiums not considered** as part of the costs of owning a home.
- Exception **in the US**: properties in high flood risk areas **must obtain flood insurance** from the National Flood Insurance programme (NFIP).
  - ✓ **'Risk Rating 2.0' –** better aligning flood insurance premiums with individual property risk.
  - ✓ **Quoting Tool** - allowing property owners to self-assess flood risk and receive insurance quotes.
- **Mandatory insurance -** more difficult for 'disaster investors' to make a profit.

Source: The Geneva Association.

Stakeholders and their impact on local risk levels

Homeowners	Communities and neighbourhoods	Governments (local, state, federal/national)	Developers/contractors, utilities	Government-backed insurance pools
				
▪ **Buy / build decisions:** • Quality of life • Cost of living • Increasingly • Mandatory disclosures • Insurance costs ▪ **Investing in retrofits requires:** • Property risk info • Access to knowhow • Financial incentives and support	▪ Organise collective actions to reduce risk for all ▪ Lobby local governments for more resilient local development	**Local and state government:** ▪ Expansion of affordable housing vs restrictions on where to build ▪ Zoning, permits, building codes ▪ Urban design and land alterations ▪ Coordination with federal government, availing funding **National/federal government:** ▪ Large-scale infrastructure projects ▪ Funding for state and local projects ▪ Official warnings, disaster response, post-disaster aid	**Developers/contractors:** ▪ Adhere to local building codes ▪ Lobby against risk-based zoning and updated building codes **Utilities and infrastructure owners:** ▪ Could exacerbate local risks ▪ Need for • Resilience retrofits • Proactive monitoring and maintenance	▪ No risk-based pricing ▪ Lack resilience requirements ▪ Solidarity based/allow living in hazard-prone regions ▪ Do not cover replacement costs ▪ Could push private insurers out

Stakeholders and their incentives to reduce and prevent risks

Homeowners	Communities and neighbourhoods	Governments (local, state, federal/national)		Developers/contractors, utilities	Government-backed insurance pools
					
Return on investment: ▪ Home damage savings ▪ Higher home value ▪ Reduced insurance premiums ▪ In some cases, reduced mortgage rates	▪ Same as homeowners ▪ Saving public properties and services for the community	**Local and state:** ▪ Securing future tax revenue ▪ Avoiding litigation ▪ Credit rating ▪ Re-election prospects	**National/federal:** ▪ Less post-disaster aid spending ▪ Preventing risk accumulation ▪ Credit ratings ▪ Re-election prospects	**Developers/contractors:** ▪ Lack of incentives to exceed minimum life and safety standards; want to keep costs low **Infrastructure owners and utilities:** ▪ Avoiding litigation ▪ Credit rating	▪ Sustainability of pools ▪ Keeping private insurers in the market

Valuation and mortgage and lending systemshave traditionally overlook property's extreme weather risk

Insurance is often required by law or lenders for mortgages, so how are insurance disruptions impacting valuation and mortgage system?

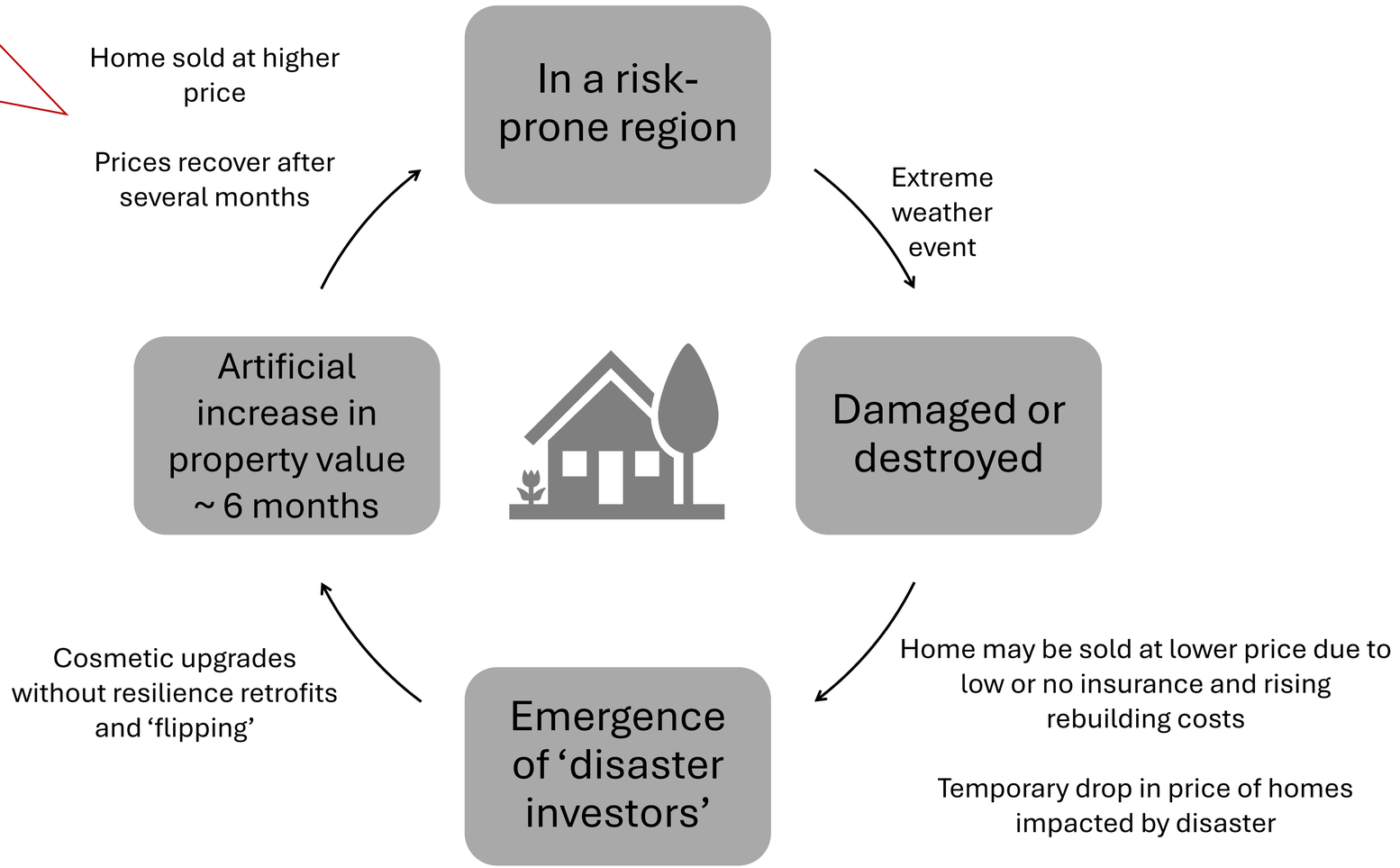
Country	Is insurance required by law or lender	Details
North America		
U.S.	Yes by law, some cases	▪ Mortgage default insurance required for down payments under 20%. ▪ Flood insurance is required for government-backed mortgages in high-risk flood areas. ▪ Lenders typically require homeowners' insurance.
Canada	Yes by law, some cases	▪ Mortgage default insurance required for down payments under 20%. ▪ Lenders typically require homeowners' insurance.
Australia		
Australia	Not by law but by lenders	▪ Lenders typically require mortgage default insurance and homeowners' insurance for down payment is under 20%.
Asia		
Japan	Not by law but by lenders	▪ Lenders typically require life insurance as collateral.
Europe		
Germany	Not by law but by lenders	▪ Lenders typically require homeowners' insurance and may require life insurance as collateral.
Italy	Yes by law	▪ Fire insurance is mandatory. ▪ Lenders may require life insurance as collateral and additional homeowners' insurance.
Spain	Yes by law	▪ Fire insurance mandatory by law. ▪ Lenders may require additional homeowners’ insurance.
Portugal	Not by law but by lenders	▪ Lenders typically require homeowners' insurance and may require life insurance as collateral.
U.K.	Not by law but by lenders	▪ Lenders typically require borrowers to have homeowners’ insurance.

Sources: Consumer Financial Protection Bureau 2023, FloodSmart 2024, Government of Canada 2023b, Maunder 2024, Engel&Volkers 2024, Banco De Espana 2024, EXS Seguros 2024, HSBC 2024, Insurance Council of Australia 2021, AtHome 2023

Home valuation has traditionally overlooked property risk linked to extreme weather

This cycle is being disrupted with prices of high-risk properties dropping due to two factors:

- Mandatory hazard disclosures
- Mandatory insurance and rising premiums



Valuation and mortgage systems overlook property risks

Primary Mortgage Market

1. Decision to buy and/or build a property

Homeowners generally decide to build or buy a home based on:

- Cost of living
- Quality of life

2. Apply for a mortgage

3. Lenders assess and approve mortgage

1. Mortage appraisal considers personal credit and market conditions.
2. ‘Property valuation reports’ used for mortgage appraisl use ‘open market value’ which is the market price, rather than ‘insured value’ which is cost of replacement.
3. Insurance is required by law and/or lender for the entire duration of mortgage
4. Lenders do not consider property risk, assuming that it is transferred to insurers through borrowers’ annual insurance
5. Depending on the jurisdiction, lenders may impose specific requirements for the level of insurance.
    i. Borrowers are initially qualified for a mortgage based on their ability to afford the new loan payment and insurance costs in the first year of coverage.
    ii. If insurance prices are not risk based, this can bias insurance requirements.
    iii. Lenders’ insurance requirements generally do not consider rising cost of owning or declining value of property.
    iv. Lenders could approve mortgage irrespective of rising property risks overtime

4. Verifying insurance renewals

1. Beyond originations, homeowners:
    i. May opt out of insurance due to affordability or not be able to get insurance if it is no longer available
    ii. This could lead to mortgage delinquencies in case of an extreme weather event
2. Some countries have established robust insurance verification process (e.g. US):
    i. To verify annual insurance of the borrower,
    ii. With risk mitigation measures, e.g. place a ‘force-placed insurance’ policy in case borrower’s insurance is cancelled, or foreclosure id borrower doesn’t pay, although not always.
    iii. To protect lenders and investors
3. In other countries, while mandated by law, lenders may verify insurance only at the point of origination and not thereafter.
    i. This could lead to blind spots about insurance cancellation and mortgage defaults following disasters.

Secondary Mortgage Market

5. Loan aggregators securitise them

Government-Sponsored Enterprises (US, Canada and Japan):

- Package up mortgages into mortgage-backed securities (MBS)
- Guarantee the repayment of the mortgages, assuming that properties are backed by insurannce

Investors:

- Buy MBS, asusming properties are backed by insurance.
- US - only MBS
- EU - covered bonds preferred
- Canada, Australia, and Japan – both used

6. MBS and covered bonds sold to investors

How to solve the problem: Need for a targeted, prioritized and all-of-society approach to addressing the rising insurance challenge

A two-tier ‘all of society’ framework to strengthen resilience

Tier I: Scaling up local resilience measures that have been demonstrated to have impact

Stakeholders	Outcomes & examples
▪ Governments ▪ Private re/insurers ▪ Public utilities and infrastructure owners ▪ Homeowners ▪ Neighborhoods and communities	**1. Develop a shared understanding of hazards and increasing local risks driven by greater exposure and vulnerability** ▪ Australian Hazards Insurance Partnership (National gov with insurance industry)
	2. Develop specific solutions to prevent risks of new construction ▪ Japan Building Standards Act restricting building in disaster zones (National and local govs) ▪ California – Paradise: building back with updated building codes (State and local govs) ▪ Australia – Queensland: voluntary home buy-back programmes with rezoning for non-residential purpose (National, state and local govs)
	3. Identify, prioritise and focus on the most impactful measures to retrofit existing structures ▪ Netherlands - ‘Room for the River’ programme (National) ▪ Tokyo floodwater diversion system (National and Municipal) ▪ Strengthen Alabama Homes certification programme linked to valuation, mortgage and insurance (State and local govs, insurance, real estate, mortgage) ▪ Australia bushfire resilience app for homeowners, linked to certification, valuation, mortgage and insurance
	4. Redesign post-disaster aid to incentivise resilience measures ▪ Germany Federal Water Act transferring responsibility to local government ▪ Reform of Canada Disaster Financial Assistance Arrangements
▪ Insurance-funded think tanks ▪ Technical colleges with certification training for • Home inspectors • Property appraisers • Mortgage lenders • Insurance brokers ▪ Technologists & investors	**5. Increase utilisation of resilience guidelines and know-how** ▪ Guidelines developed and availed by insurance industry bodies such as IBHS and ICCA
	6. Develop and deploy innovative solutions for adoption by relevant stakeholders, examples: ▪ Risk modelling (Riskthinking.AI) ▪ Housing and mortgage valuation with climate risk (DeltaTerra Capital) ▪ Resilient home construction (SABS™ Building System) ▪ Proactive infrastructure maintenance (Airobotics, Percepto)

A two-tier ‘all of society’ framework to strengthen resilience

Tier II: Structural changes to incentivise behavioural changes

Stakeholders	Outcomes
▪ Certified property valuers ▪ Mortgage lenders ▪ Government-sponsored enterprises ▪ Real estate community ▪ Private re/insurers ▪ Government-backed insurance pools ▪ Insurance and mortgage regulators ▪ Credit rating agencies	**Structural changes to property valuation and mortgage processes linked to insurance:** i. Use risk-based premiums linked to rising cost of home ownership and reduced values linked to risk levels before approving mortgage ii. Lenders to raise borrowers’ awareness and conduct annual monitoring of borrowers' insurance to keep track of cancelations and defaults iii. Mortgage regulators to make the latter mandatory
	Stronger government-insurance industry collaboration to support the implementation of home resilience certification programmes with incentives i. Such as Strengthen Alabama Homes certification programme linked to higher valuation, lower mortgage rates, and lower insurance premiums)
	Improve government-backed re/insurance pools to promote and support resilience measures
	Boost support from insurance and lending regulators for risk-based pricing, public education, and resilience measures (zoning, building codes, etc.)
	Include resileince measures in stakeholders’ credit ratings.
	Enhance insurance industry partnerships with other stakeholders to raise awareness and strengthen resilience

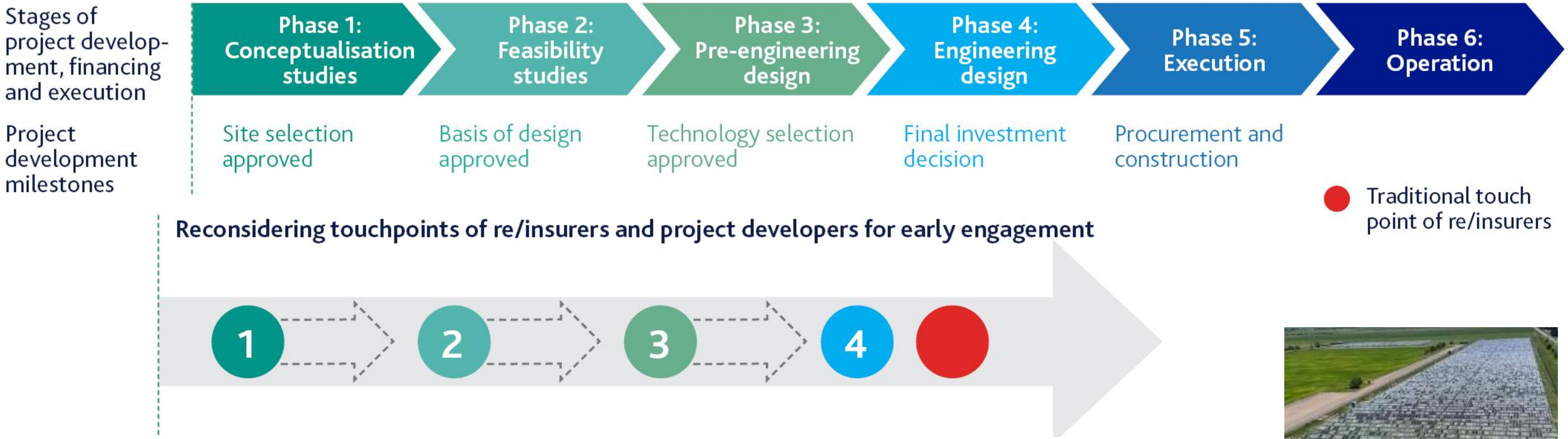
Challenges ahead

- **Overall, given the sectoral and institutional silos, cross-sectoral collaboration and alignment of priorities remain an obstacle for effective approach to implementing Tier I and Tier II. That needs to be overcome to address the emerging insurance challenges.**

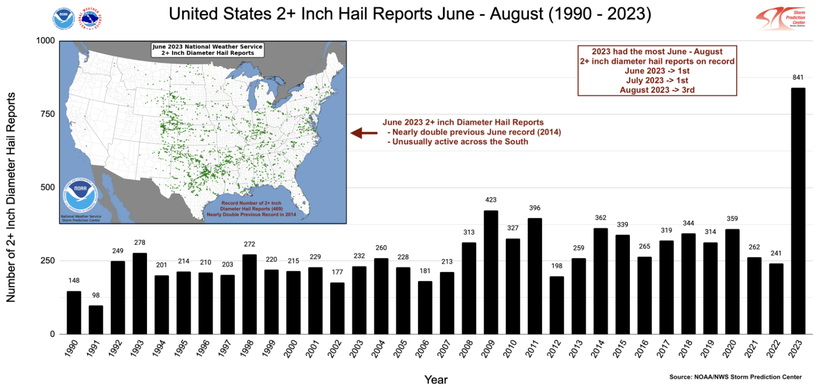
- **Other challenges:**
  - ✓ Managing the indirect and compounding impacts of extreme events.
  - ✓ If weather-related risks are not managed, this could also hinder the energy transition.
  - ✓ Addressing physical climate risks must go hand in hand with investing in climate change mitigation to address rising acute and chronic physical climate risks

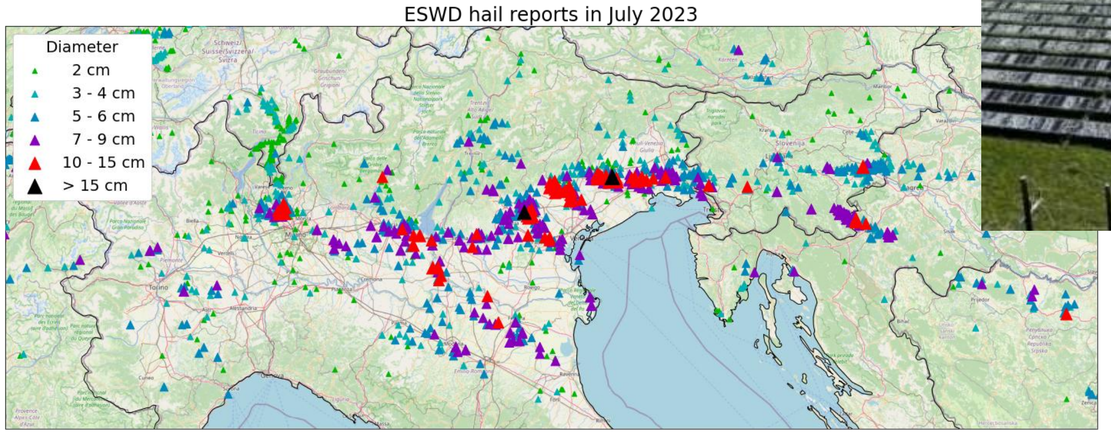
Manging Extreme weather is holding back the transition

A look into insurability of solar



Source: Geneva Association





INSURANCE FOR A BETTER WORLD

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