

Testimony of

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Encouraging Greater Flood Insurance Coverage in America

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Bridging the Flood Protection Gap

Marsh McLennan is the world's leading professional services firm in the areas of risk, strategy and people. Our more than 85,000 colleagues advise clients in 130 countries. We help corporate and public sector clients navigate an increasingly dynamic environment and address the most complex challenges of our time through four market leading businesses — Marsh, Guy Carpenter, Mercer, and Oliver Wyman.

We have a deep understanding of flood-related risk and insurance issues, having been engaged with property insurance challenges since our beginning more than 150 years ago. We work with clients — including individuals, businesses, organizations, governments, and communities — to analyze their flood risk exposures; help them implement solutions before, during and after an event; and to address and mitigate the financial impact of natural disasters, including flooding, through insurance and other risk transfer tools.

The flood protection gap

Despite being one of the most common and destructive natural hazards, flood risk is systematically underestimated, which contributes to inadequate insurance, underinvestment in flood resilience, and policy decisions that, in many cases, may not be helping.

With the increasing frequency and severity of flood events, together with population growth, economic development, and urbanization, the nation's people and infrastructure are at greater risk.

Gaps in flood risk protection exist not only in insurance coverage, but in resilience measures that can help communities minimize and recover from losses.

In inflation-adjusted 2021 dollars, global economic losses from floods increased from \$504 billion in the 15-year period between 1992 and 2006 to \$729 billion between 2007 and 2021. According to the [Marsh McLennan Flood Risk Index](#), 18% of the global population is currently threatened by flooding, a number projected to rise considerably in the coming years.

Flood market overview

The US National Flood Insurance Program

In the US, the main source of flood insurance is the National Flood Insurance Program (NFIP), created in 1968 to address the lack of a private market for flood coverage. The Federal Emergency Management Agency (FEMA) administers the NFIP, which requires occasional congressional reauthorization; the program's current authorization is set to expire on September 30, 2023. Congress has held hearings to discuss long-term reauthorization, information sharing, and other issues, but so far has been unable to reach consensus and needs to perform a robust analysis of reauthorization proposals to extend the program for another multiyear term.

Federally backed flood policies are available through the following two channels:

- The Write Your Own (WYO) program, a group of roughly 50 insurance companies that use their own licensed agents and producers and are authorized by FEMA to act as a fronting insurer to issue and service NFIP-backed flood policies.

- NFIP Direct, which allows agents not appointed by a WYO insurer to write flood insurance directly through the NFIP.

Although a private flood insurance market has emerged since the creation of the NFIP, it is small in comparison — the NFIP [accounts for more than 95%](#) of household policies purchased as of 2018. While the number of private policies is likely rising, the NFIP will continue to dominate the market for the foreseeable future. Even with the current public and private market offerings, as much as 85% of American households lack flood coverage.

Various factors explain the poor uptake, including some evidence that expectations of government relief reduce demand. More fundamentally, property owners generally do not fully understand their risk and, more often than not, underestimate it.

For example, property owners often make a buy/don't buy coverage decision based on whether they are "in or out" of a Special Flood Hazard Area (SFHA) — which is defined by the FEMA as a zone with a greater than 1% annual probability of flooding.

Property owners outside of SFHAs often consider themselves safe, but, of course, flooding is not confined to administratively defined locations. For example, almost three-quarters of Houston properties that flooded during Hurricane Harvey were outside of SFHAs. And recent modelling indicates that millions of properties with a 1% annual probability of flooding are not even currently listed in SFHAs.

But the low uptake of flood insurance among households outside of SFHAs does not fully explain the protection gap. Even inside SFHAs, only 30% of homeowners are covered, despite a requirement that flood insurance be in place for federally backed mortgages in these areas.

There is also a misconception that flood insurance is expensive. Yet the average [NFIP premium of \\$985](#), while not inconsequential, is disproportionate compared to the average flood insurance claim of \$44,401.

Risk Rating 2.0. At this time, the NFIP is evolving, particularly through a new risk rating methodology — Risk Rating 2.0 — that is intended to align flood insurance premiums more closely with the risks related to specific properties. As of April 2022, all new or renewing NFIP policies are subject to Risk Rating 2.0.

Before the rollout of the new rating program, FEMA estimated nearly one-in-four policyholders would see immediate NFIP premium decreases. FEMA forecast that 66% of policyholders, on average, would see monthly premium increases of \$0 to \$10, and 11% would see premiums rise by more than \$10 per month.

Under FEMA's administrative procedures, policyholders will see NFIP premium reductions under Risk Rating 2.0 immediately. For those receiving increases, higher premiums will be phased in gradually, generally capped at 18% annually, though they will be notified of the full risk rating.

When policyholders see that a sharply higher rate will apply, they often seek an explanation from their agent. Due to the newness of Risk Rating 2.0, how it will influence rates for individual policyholders is not yet clear.

According to FEMA's rate explanation guide, a flood risk rating takes into account

- Where a property is built (property address).
- How the property is built (building characteristics).

- What property is built and covered (replacement cost and coverage).

Greater transparency is needed to understand why NFIP premiums for a specific address rise or fall. For some policyholders, dissatisfaction with higher premiums is a reason not to renew their flood coverage. FEMA does offer technical data sources, but these don't apply to all situations. Torrent, a unit of Marsh, has taken the lead in simplifying the quoting process to help create a more accurate quote and ease the application process for insurance agents.

Because both legacy NFIP policies and those using the new rating are currently in force at the same time, the impact of Risk Rating 2.0 will become apparent in the coming years. Even though the NFIP coverage has not changed, the claims process under Risk Rating 2.0 may result in a somewhat different claim experience for NFIP policyholders.

For example, the new risk rating requires some additional information — which may be used for premium discounts — that legacy policies do not, such as first-floor height and the location of appliances, machinery. This can result in additional steps for insurance agents, claims adjusters, and write your own (WYO) companies. In certain cases, claims under Risk Rating 2.0 may take longer and necessitate premium adjustments that result in a refund or the collection of additional premiums before the claim can be paid.

Private flood insurance

Interest by private sector insurers in underwriting flood risks continues to grow, due in large part to improvements in risk technology and analytics that enable insurers to better understand flood risks and exposures.

Types of private flood insurance currently available include:

Primary residential flood, which can mirror NFIP coverage terms or provide enhanced coverage for residential properties.

Standard NFIP Coverage	Examples of Available Private Primary Residential Flood Coverage
Dwelling limits of \$250,000	Dwelling limits up to \$2 million+
Contents limits of \$100,000	Contents and personal property limits up to \$1 million
Contents-only limits for renters up to \$100,000	Personal property up to \$1 million
30-day waiting period	No waiting period or limited period, e.g., 7 days
No additional living expenses are currently offered via the NFIP	Potential additional living expenses up to \$250,000

Some homeowners' insurers also provide coverage for flood insurance via endorsement.

Primary commercial flood, which could replace the NFIP for small businesses.

Standard NFIP Coverage	Examples of Available Private Primary Commercial Flood Coverage
Building limits of \$500,000	Building and contents combined limits up to \$10 million
Contents limits of \$500,000	
30-day waiting period	Often a limited period, e.g., 7 days
Business income coverage is unavailable at this time	Business income coverage is often available

Commercial “all-risk” is a broad form of coverage designed for large businesses. It can provide protection for various property risks, including flood and business interruption. The amount of coverage available in these policies is typically much greater than a flood-only policy. However, in recent years, we have seen greater underwriting scrutiny of flood in all-risk programs, and in some instances a deterioration of coverage for specific locations. This amount of coverage is usually unsuitable for small businesses and is not applicable to homeowners.

Excess flood coverage sits on top of underlying private primary coverage or an NFIP policy. Excess flood insurance is available to individuals and businesses, and can provide higher limits of protection as well as enhanced coverages such as additional living expenses and business interruption.

Contents-only coverage was highlighted by Hurricane Ian, which served as a reminder that anywhere it rains, it can flood. The vast majority of people renting homes, apartments, and condos did not have a contents-only flood insurance policy. While both the NFIP and private market offer renters policies, this highlights an opportunity to help renters with this type of coverage for their financial peace of mind.

Closing the protection gap

Flooding disproportionately affects lower income communities, which are more vulnerable and more exposed to flooding. One way to help bridge the divide is by increasing participation in flood insurance. [Studies have shown](#) that individuals and communities with flood insurance recover better and faster than those without.

It's important to keep in mind that insurance is but one piece of a national flood resilience strategy, along with investment in flood protection and resilience, enhanced access to flood risk data, and smarter land-use planning.

But, while insurance is a critical part of recovery from natural disasters, many households and businesses simply do not have adequate coverage for repairs and rebuilding, a scenario that is playing out today in the recovery efforts from Hurricane Ian, last summer's devastating floods in eastern Kentucky and Missouri, and elsewhere.

The reasons for low coverage rates vary, and include affordability constraints, limited risk awareness, poor understanding of insurance, and behavioral biases in decision making. The continuing protection gap in the United States means that many individuals, businesses, and communities do not have the financial resources to effectively recover following a flood or other disaster.

We believe there are several ways to improve risk readiness and mitigate the impact of floods. These include:

Strengthening the NFIP. With current debt of more than \$20 billion and hundreds of millions of dollars in interest payable annually, the NFIP needs reform and long-term reauthorization to become a sustainable source of flood insurance. Risk Rating 2.0 is a step in the right direction to align premiums with risk, but the program needs to keep attracting, not losing, policyholders. A sound financial framework that spells out roles and accountabilities of the NFIP, along with those of Congress, will help reinforce the program.

Protecting the NFIP with reinsurance solutions. Guy Carpenter, a business of Marsh McLennan, is FEMA's broker, providing reinsurance for the NFIP. Reinsurance is backed by capital market investors and continues efforts to better manage the NFIP's financial risk. Reinsurance provides much needed assurance that claims will be paid while at the same time protecting the NFIP and taxpayers. For example, Hurricane Harvey triggered a full reinsurance payout, saving taxpayers over \$850 million.

Grow the private flood market. The Biden administration has proposed a package of NFIP reforms in which it recognizes the role of a private flood insurance market in supplementing and supporting the government-backed program. Private flood insurance can offer options that make purchasing flood coverage easier and more attractive. Each property that obtains flood coverage in the private market is a risk the NFIP and US taxpayers do not have to bear. The private market offers the possibility for innovation and products to further close the flood insurance gap.

Embrace parametric insurance. A form of alternative risk transfer that is growing in demand as a tool to improve climate resilience, parametric insurance solutions deploy a measurable index with predefined triggers that can pay out once those metrics are reached. Unlike most forms of traditional property insurance, pricing is based primarily on the probability of the loss indexed being triggered rather than the

specific risk of damage suffered by the benefits recipients. This is particularly effective where it is either not possible, feasible, or desirable to assess the underlying exposed interests. Parametric solutions offer a more expedited contract payout, typically getting funds into the hands of those who have suffered loss in a matter of days, which can accelerate recovery. This is particularly important when it comes to flood as a delay in restoration can result in proliferation of mold, which over time contributes to health problems.

Promote excess flood coverage to complement the NFIP. While the NFIP remains a reliable source of flood insurance, its coverage limits are insufficient for many higher-value properties with flood exposure. Such properties need excess coverage to supplement the foundational NFIP protection. For example, in the second quarter of 2022, the median price of homes sold in the United States was \$440,300, according to Federal Reserve Economic Data; this substantially exceeds the NFIP dwelling limit of \$250,000.

Community-based catastrophe insurance

One innovative approach to boosting insurance purchasing that Marsh McLennan is involved in is known as [community-based catastrophe insurance](#) (CBCI). Essentially, CBCI provides disaster insurance arranged by a local government, quasi-governmental body, or community group to cover a group of properties.

The benefits of CBCI fall into three main areas: enhancing financial resilience; providing affordable coverage; and creating incentives for risk reduction at the community and individual level (see Figure 1).

This type of program is flexible, and can be created to cover a single hazard or a range of natural disasters for a given community, including flood, but also wildfire, earthquake, and others. Such broad applications can further incentivize a community’s risk management efforts — risk reduction, risk communication, and risk transfer — across multiple perils. For flood risk, this could mean levee improvements and/or ecosystem-based interventions, including wetlands enhancements, and more.

Figure 1: Potential benefits of CBCI

Enhances financial resilience	Provides affordable and available coverage	Creates incentives for community-level and individual risk reduction
<ul style="list-style-type: none"> Reduces the community’s contingent disaster liabilities Enhances the community’s credit risk profile Speeds the recovery of insureds Supports the community’s post-disaster economic revitalization 	<p>Reduces premium costs by:</p> <ul style="list-style-type: none"> Increasing buying power and securing volume discounts Enhancing data provision for risk analysis Reducing administrative costs Supporting means testing <p>Increases insurance availability by:</p> <ul style="list-style-type: none"> Lowering premium costs Guaranteeing coverage post-loss 	<ul style="list-style-type: none"> Enables capture of premium discounts for community-scale and household mitigation efforts Supports financing of risk reduction activity via premium surcharge Enhances decision-making around risk reduction through risk analytics and pricing

Source: Marsh & McLennan

Within broad parameters, CBCI has much flexibility in its structure and design, with varying degrees of community responsibilities possible (see Figure 2). These range from a facilitator model where the

community members contract with insurers, all the way through to a captive insurer in which the community establishes and operates its own risk-bearing entity.

Figure 2: CBCI delivery models

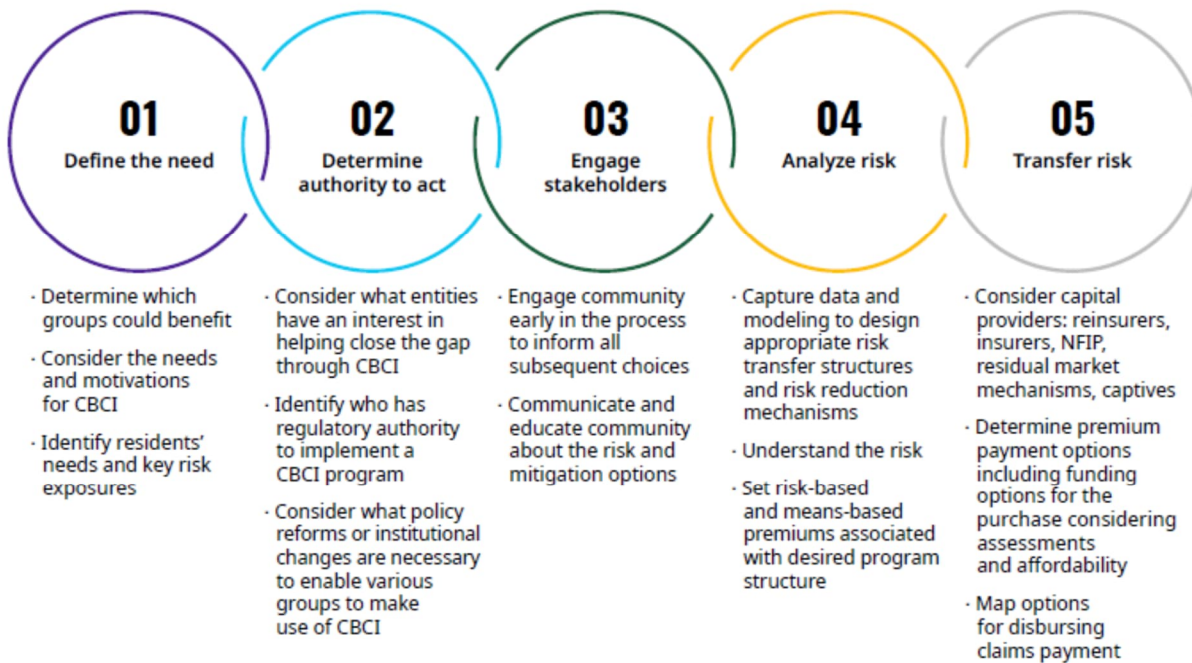
Models	Description	Community roles
<p>Facilitator</p>	<p>The community helps to establish a beneficial arrangement with an insurer for community members. Community members contract directly with the insurer.</p>	<p>Member education; data provision; engage and educate members; administer means-testing program (if any); adopt regulations to encourage or compel purchase; and negotiate discounts for community resilience enhancements.</p>
<p>Group policy</p>	<p>The community arranges a group policy on behalf of its members (e.g., similar to an employee benefit arrangement). Community may facilitate premium payment, but the community members maintain a relationship with the insurer for claims management.</p>	<p>Same as facilitator model; plus management of enrollment/distribution negotiations of premium; and facilitation of payment.</p>
<p>Aggregator</p>	<p>The community buys bulk parametric catastrophe insurance and makes community members aware of this community benefit, charges for it, such as via taxes, and ensures claims are distributed to members after qualifying events.</p>	<p>Obtain adequate coverage to meet community member recovery needs; ensure premium charge and claims payment mechanisms are in place; and raise awareness of benefit amongst community members.</p>
<p>Community captive</p>	<p>The community establishes its own risk-bearing entity (e.g., a captive) and uses it to administer policies for members.</p>	<p>Same as group model plus capitalize and govern risk bearing entity; finance portion of risk; purchase reinsurance; manage claims payments; and set insurance policy terms and conditions¹.</p>

Degree of community control, resources and expertise required: Low High

Note: Depending on community objectives, implementing a captive may require licensure procedures or a fronting carrier
 Source: Marsh & McLennan

The roadmap to implementing a CBCI program will vary depending on the unique needs of a given project and community. That said, there are five basic components to implementing a program (see Figure 3): defining the need, determining the authority to act, engaging stakeholders, analyzing risk, and transferring the risk. It should be noted that these steps are not necessarily sequential, and there may be back and forth among them depending on local circumstances.

Figure 3: Potential roadmap to CBCI implementation



Source: Marsh & McLennan

A CBCI pilot program: Boosting financial resilience in NYC neighborhoods

One benefit of community-based catastrophe insurance is the flexibility it allows in defining “community,” which can be an agency or municipal government, a neighborhood association, a business improvement district, or any number of entities. The primary requirement is that the involved community has the authority to secure or facilitate insurance coverage on behalf of multiple properties.

We are currently involved with a project in New York City, which will establish it as one of the first local governments in the US to harness this approach. The project’s goal is to increase the financial resilience of low- and moderate-income households to flood risk. These communities are increasingly vulnerable to flooding and are, in many instances, under or uninsured.

Guy Carpenter and MMC Securities, both units of Marsh McLennan, are working with the City of New York and the Center for NYC Neighborhoods (CNYCN) and others to pilot the program in designated neighborhoods. Many of the potential benefit recipients cannot afford flood insurance or are locked out of the traditional insurance market.

The program is built on a parametric insurance contract, described earlier. In the NYC program, payouts will be made to CNYCN for qualifying flood events based on a mix of satellite data, on-the-ground real-time sensors, and social media images. Once a qualified event triggers the payment, homeowners will be able to apply for assistance — on their own or with help from CNYCN’s network partners. Qualified applicants can then receive a grant up to \$15,000 from CNYCN within days of a major flood.

The intent of these payments is to support residents and their broader communities in getting back to normal faster. It also will allow them to avoid having to make such tough decisions as whether to pay for home flood repairs versus other critical family needs, like healthcare, food, and saving for education.

We are proud to have helped kick start this innovative program, and hope it will other communities to establish their own CBCI program. Federal grant funding could be a catalyst here.

International flood insurance approaches

Insurers and insureds alike felt the impact of increased losses from flood and other disasters during particularly challenging January 1, 2023, insurance program renewals. Property insurance pricing increased by an average of 11% in the US and 7% globally in the fourth quarter of 2022, according to Marsh's [Global Insurance Market Index](#).

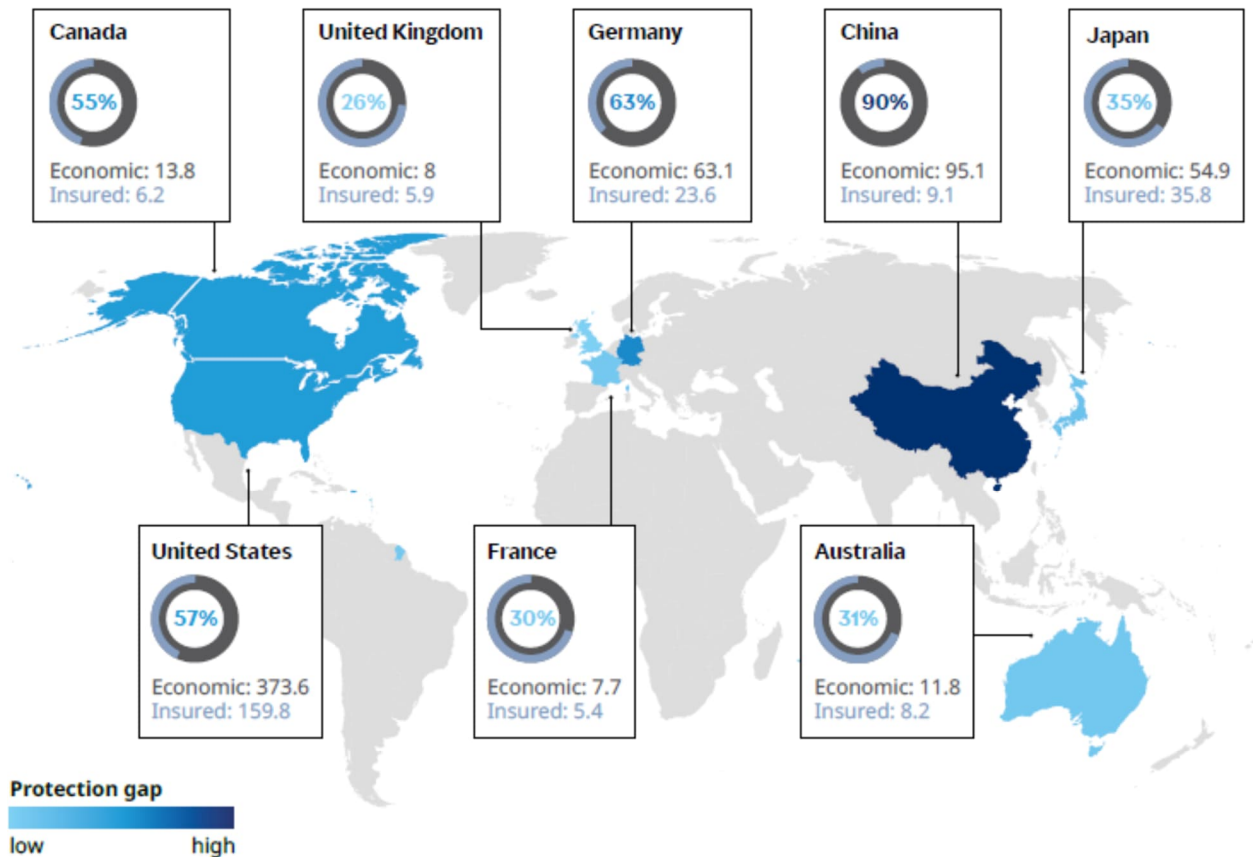
In 2022, flooding was the dominant contributor to global losses that were estimated at \$270 billion, of which approximately \$120 billion were insured. A snapshot of 2022 flood-related losses includes:

- Hurricane Ian, the third costliest weather disaster on record, killed more than 160 people and caused \$100 billion in losses, \$60 billion of which was insured, on its path from the Caribbean and up the US coast from Florida through the Carolinas.
- Hurricane Fiona dumped 30 inches of rain in Puerto Rico, causing widespread power outages, multiple deaths, and billions in losses. FEMA has provided over \$700 million in federal grants to the government of Puerto Rico and to households. However, few Puerto Rican households have flood insurance, with only [\\$2.7 million in claims for flood damage related to Hurricane Fiona](#).
- In eastern Kentucky, historic summer flooding caused at least 37 deaths and more than \$1 billion in damages. It's estimated that less than 3% of affected properties were covered by flood insurance.
- Floods in Pakistan caused an estimated 1,700+ deaths and \$15 billion in damage, almost none of which was insured.
- In Australia, floods caused \$8.1 billion in damages, about \$4.7 billion of it insured.
- And in the first few months of 2023, historic flooding continues. In New Zealand, flooding in January and February has resulted in tens of thousands of insurance claims. Current estimates by the NZ government say losses are expected to top \$8 billion.

Flood risk financing exists in many developed countries, with the predominant model a government-backed program, such as the NFIP. In many countries, standalone flood insurance from either public or private sources is limited.

As exposure to flood risk increases, so do economic damages, of which only a small proportion — 12% worldwide since 1980 — are insured (see Figure 4). Among the costs, business interruption damages often approach or exceed those of physical damages as global supply chains expose business activities to floods thousands of miles away.

Figure 4: Cumulative flood losses (\$US billions) and protection gaps across select countries, 2012-2021



Note: Economic and insured loss data for the United States includes tropical cyclones; data for China and Japan includes floods and tropical cyclones; data for France, Germany, and Canada includes floods and severe convective storms; data for Australia includes floods, tropical cyclones, and severe convective storms

Source: Swiss Re

United Kingdom: Flood Re aims for affordable insurance market

The UK government has focused on making flood insurance more affordable by improving reinsurance options for insurers through its flood reinsurance program, [Flood Re](#), which has been operating since 2016 and is scheduled to sunset in 2039.

While the NFIP in the US is a federal program administered by FEMA, Flood Re is a not-for-profit, mutual reinsurance company owned and run by the insurance industry in the UK.

Flood Re makes affordable flood insurance available to more than half a million UK homes in high-risk areas. The scheme allows the government to protect those most at risk for flooding, and creates a platform to share UK flood risk with private reinsurers through reinsurance.

Flood Re was proposed by the UK insurance industry to the government as an innovative, market-based solution to provide support in the areas of the home insurance market that need it the most; those at most risk of flooding in the UK. Flood Re enables insurers to reinsure the flood risk element of a household policy to Flood Re at a fixed reinsurance premium that is set sufficiently low to allow

insurance to be affordable for homeowners. However, they may be below the underlying “technical risk premium.” This affordable reinsurance rate is paid for through a levy imposed on all home insurance policies in the UK.

Since its inception, Flood Re has improved product availability for a majority of homes at risk of flooding in the UK, with 4 out of 5 households with previous flood claims achieving more than a 50% price reduction. Involvement in Flood Re has been high, with 94% of the insurance market now offering it.

[One early criticism of Flood Re](#) was that the program — like many disaster insurance programs — was likely to face ever-increasing pressure from rising flood risks because it failed to incentivize risk management and risk reduction efforts. However, beginning in April 2021, Flood Re has been addressing those issues through a UK based program called “Build Back Better,” that [Marsh McLennan has been involved](#) with.

Build Back Better offers homeowners the chance to install flood resilience measures up to a value of £10,000 when repairing their properties after a flood. This way, the next time the area floods, homes will be better prepared to repel as much water as possible. Measures can also be installed for when water does enter to make it easier, quicker, and safer to clean up and move back in — often in days rather than months.

Canada: Exploring options

In Canada, the Task Force on Flood Insurance and Relocation — involving representatives from government, the insurance industry, and other stakeholders — recently completed an extensive review of public-private flood insurance options. Canada has yet to act on the recommendations, though stakeholders seeking a quick decision have pointed to floods in British Columbia in 2021 that caused an estimated CA\$675 million in insured losses and displaced nearly 20,000 people. Hurricane Fiona in 2022 was the most expensive disaster in Atlantic Canada, with an [estimated CA\\$800 million in insured losses](#). Among the models being considered is one similar to the NFIP; another is close in structure to Flood Re.

As elsewhere, the Canadian discussions include the need to incentivize risk reduction and relocation measures as priorities.

Southeast Asia: Regional approach to disaster risk

Countries throughout Asia are heavily exposed to a variety of natural catastrophe risks arising from earthquakes, floods and tropical cyclones, as well as secondary perils such as tsunami and volcanoes. Yet regional catastrophe risk insurance markets are still underdeveloped in terms of non-life catastrophe insurance penetration.

The [Southeast Asia Disaster Risk Insurance Facility](#) (SEADRIF) is the first regional program in the Association of Southeast Asian Nations (ASEAN) to address disaster risk financing comprehensively. It brings together risk identification, reduction, and preparedness, as well as insurance, to aid in creating resilient event recoveries.

Developed as an initiative by the ministers of finance and central bank governors from ASEAN+3 countries, SEADRIF was established in July 2019 as a multi-functional regional platform for ASEAN nations to access financial, analytical, advisory, and knowledge services. The platform also provides products to strengthen financial resilience against disasters and climate shocks.

The first financial product offered by SEADRIF Insurance Company, a licensed direct general insurer in Singapore, is a catastrophe risk pool for Lao People's Democratic Republic and Myanmar. The pool leverages joint reserves and offers market-based finite and parametric catastrophe risk insurance solutions to provide liquidity in the aftermath of disasters such as severe floods. At the request of member countries, SEADRIF is also exploring the development of other disaster-risk financing solutions, such as a joint risk pool for public assets and infrastructure of ASEAN countries.

Philippines: Catastrophe Bond

Issued by the World Bank, the first-ever sovereign catastrophe bond in Southeast Asia provides the government of the Philippines with \$US225 million in protection against earthquake and tropical cyclone risk over 3 years. The Philippines' disaster-risk financing and insurance strategy follows a multi-tiered and multi-layered approach by addressing disaster-risk financing needs on national, local, and individual levels. It also combines different financial instruments, including dedicated disaster funds, contingent credit lines and risk transfer to the international reinsurance and capital markets.

The Philippines' catastrophe bond marks a number of firsts, such as being the first catastrophe bond directly sponsored by an Asian sovereign, the first to be listed on an Asian exchange, and the first World Bank bond ever listed in Singapore. The bond recently triggered a payout of \$US52.5 million to the government of the Philippines after it was determined that super typhoon Rai (locally known as Odette) breached the trigger for wind.

Conclusion: Flood risk and the need for a disaster resilience strategy

Given the scale and complexity of the challenges presented by flood risk, society needs a clear vision that moves beyond unsustainable paradigms of protection and strikes a balance between addressing crises and fostering resilience. Insurance and risk transfer certainly have an important role to play, but must be combined with a broader, coordinated resilience strategy.

Ideally, insurance would be paired with risk reduction measures such as hazard mitigation, building codes, and community resilience planning. The US government provides incentives for such measures in the form of grant programs from federal agencies such as FEMA and Housing and Urban Development (HUD).

For example, FEMA's Building Resilient Infrastructure and Communities (BRIC) program and HUD's Community Development Block Grant – Disaster Resilience (CDBG-DR) programs provide funding for communities to reduce risks and build resilience. These measures have a demonstrable benefit to society, with an [average savings of six dollars for every one dollar invested](#).

Pairing these measures with risk transfer solutions, such as CBCI programs, can be a force multiplier. We believe that CBCI projects, like the NYC pilot, could demonstrate the value of risk reduction measures alongside the benefits of risk transfer. We would like to see FEMA encourage more such innovation and experimentation.

That said, CBCI and other private risk transfer programs could be more successful if disincentives baked into existing statutes and regulations are addressed. For example, the Stafford Act contains disincentives for homeowners and governments from purchasing insurance because FEMA's recovery programs provide funding to uninsured individuals and state and local governments after a disaster. As such, many individuals wrongly believe they will be made whole by FEMA assistance following a major

disaster, including flooding. Meanwhile governments are not inclined to insure their buildings and infrastructure because they will receive funding that covers a minimum of 75% of their losses if the President declares a disaster.

FEMA has existing authorities to incentivize state and local government to reduce their risks and to better protect federal taxpayers from disaster losses. One such authority was [granted to FEMA in the 2018 Balanced Budget Act](#) (BBA). Specifically, the BBA authorized FEMA to increase federal funding under the Stafford Act for communities that take the proactive steps such as insurance, building codes, and hazard mitigation. We see the implementation of this provision as a significant opportunity to remove existing barriers to resilience investments and a strong incentive for communities to do the right thing before disaster strikes.

Similarly, the insurance industry should work with FEMA and code-setting organizations, such as the International Code Council (ICC), to develop incentives that would encourage additional flood mitigation investments. For example, we encourage FEMA and the insurance industry to review ICC limits to encourage investments after a flood loss. And more broadly, other industries, such as finance and real estate, can [incentive further flood resilience investments](#) together with the insurance industry and government.

Leaving the flood protection gap unaddressed will compound its costs and the devastating impacts on individuals and communities. As highlighted in a recent report from Marsh McLennan — [Staying above water: A systemic response to rising flood risk](#) — three ways forward present themselves for transforming flood risk management.

1. Learning to live with floods through a cross-societal push for resilience, with communities, businesses, and governments implementing small-scale measures to mitigate risks and minimize damage.
2. Building strategic protection by deploying large-scale systemic interventions to protect critical assets and ensure financial resilience.
3. Preparing for relocation by facilitating resettlements of people and assets from high-risk areas in a timely, equitable, and financially viable way.

Financing and implementing these strategies will require decisive action, effective leadership, and innovations such as those being tested now in community-based catastrophe insurance projects. Critical enablers across governance and risk culture, land use and infrastructure planning, and finance and insurance are necessary to turn the flood resilience vision into reality and close the protection gap.