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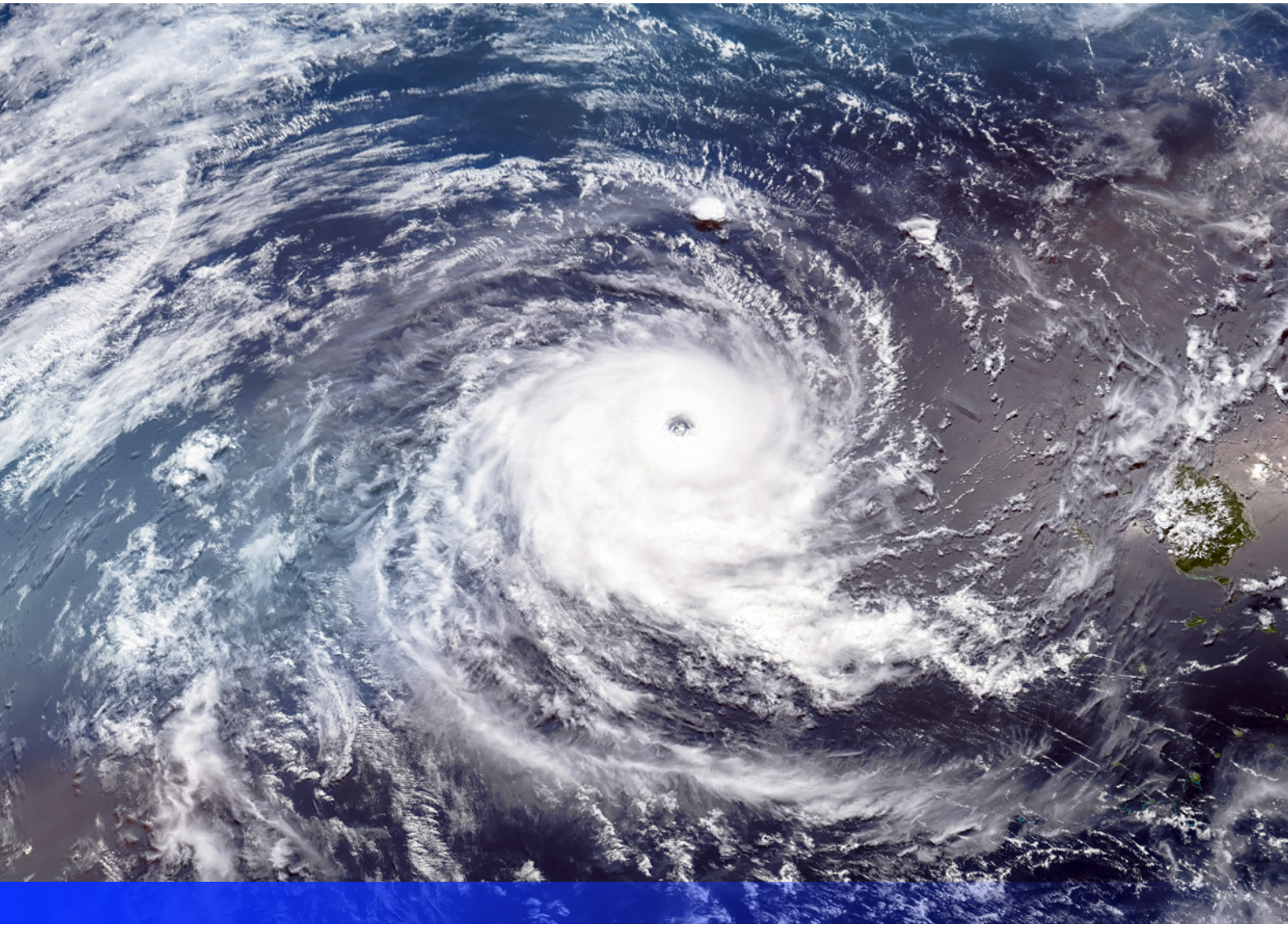
Sustainable Markets Initiative



Insurance

BRIEFING NOTE (SMI)

LSEG

Summary

- Natural disasters are becoming bigger and happening more frequently.
- The insurance industry is highly exposed, both through its underwriting and its investment activities.
- Insurers appear to have underestimated both the immediacy and the severity of climate-related risks.
- Insurance business models will have to change, exposing risks but also bringing opportunities.
- Regulators have a critical role to play in ensuring a smooth evolution.

Background

Climate change is widely recognised as an overarching global threat. For the past three years, the top three risks identified by the World Economic Forum have been:[1]

1. Extreme weather events.
2. Climate action failure.
3. Human environmental damage.

The adverse impacts of climate change (rising temperatures and sea levels, increasing frequency and severity of natural catastrophes) affect all aspects of life on Earth — human, societal, environmental, and economic systems.

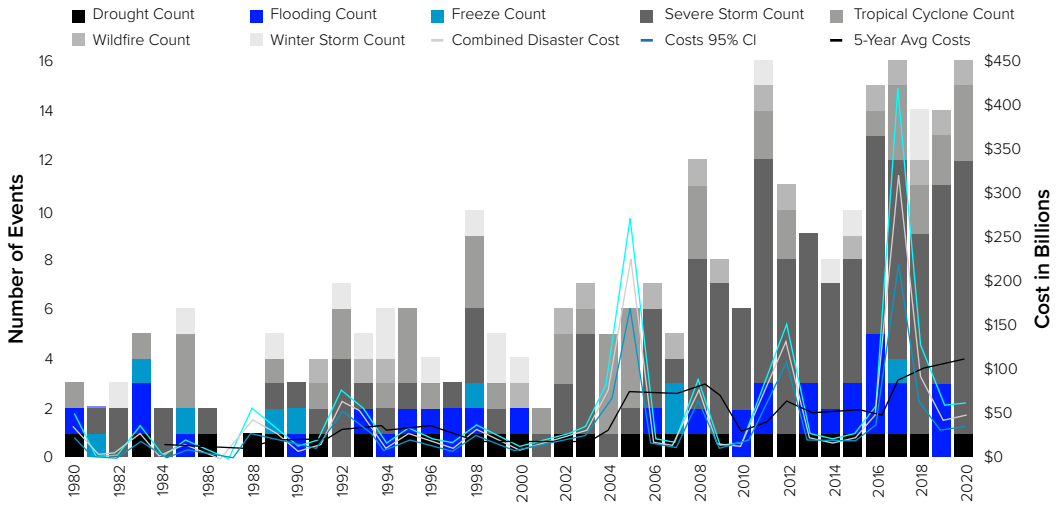
The recognition that climate change and climate-related risks bring financial risk, affecting the resilience of individual financial institutions, including insurers, as well as financial stability more broadly, is also growing.[2]

Natural disasters on the rise

Stronger and more frequent natural disasters are occurring at record-breaking rates.

- **Globally,** there were an estimated 416 natural catastrophe events in 2020, resulting in $268bn worth of economic damage, 8% above the average annual losses for this century.[3]
- **In the US,** the number of billion-dollar weather and climate disasters has increased 7-fold since 1980. (Figure 1)
  - Since 1980, the U.S. has sustained 285 'billion dollar or more' weather and climate disasters. The total cost of these 285 events exceeds $1.875 trillion.
  - In 2020, there were 22 separate billion-dollar weather and climate disaster events across the US, breaking the previous annual record of 16 events in 2017 and 2011.[4]
  - In 2020, hurricanes, wildfires, severe storms, and other natural disasters across the US caused $95 billion in damages, almost double the amount in 2019 and the third-highest losses since 2010.[5]
  - The total cost over the past 5 years (2016-2020) exceeds $600 billion — averaging more than $120 billion/year — both new records.
- **The frequency and cost of natural disasters is increasing over time** due to:[6]
  - Increased frequency of some types of extremes that lead to billion-dollar disasters;
  - Increased exposure (value at risk); and
  - Increased vulnerability (damage that the intensity (wind speed, flood depth) at a location causes).

Figure 1: United States billion-dollar disaster events



Source: https://www.ncdc.noaa.gov/billions/time-series

Role of insurance

- **The insurance industry's core business is to understand, manage, and carry risk.** Its business model depends importantly on the trust that people place in the industry's ability to meet its obligations.
- Through risk prevention, risk reduction, and risk distribution, **the insurance industry helps to protect society, foster innovation, and underpin economic development** — key contributions to a well-functioning and sustainable society.[7]
- Mark Carney, former Governor of the Bank of England, warned in 2015 in his landmark **'Tragedy of the Horizon'** speech to the insurance market Lloyd's of London of the financial stability risks arising from climate change thus:
  "The challenges currently posed by climate change pale in significance compared with what might come."[8]
- Five years on, it is increasingly evident that **the insurance industry has underestimated the immediacy of physical effects** from climate change, as well as the effect on bio diversity.
- McKinsey research shows that by 2050 **the value at stake from climate-induced hazards could double**, from about 2% of global GDP to more than 4%.[9]
- Not only is the insurance sector **highly exposed** to the effects of climate change **via its underwriting activities**, it is also impacted **via its investment activities**, not least by being **one of the world's biggest investors in fossil fuels. We are starting to see evidence of these investment patterns changing**.

Climate change risks in the insurance sector

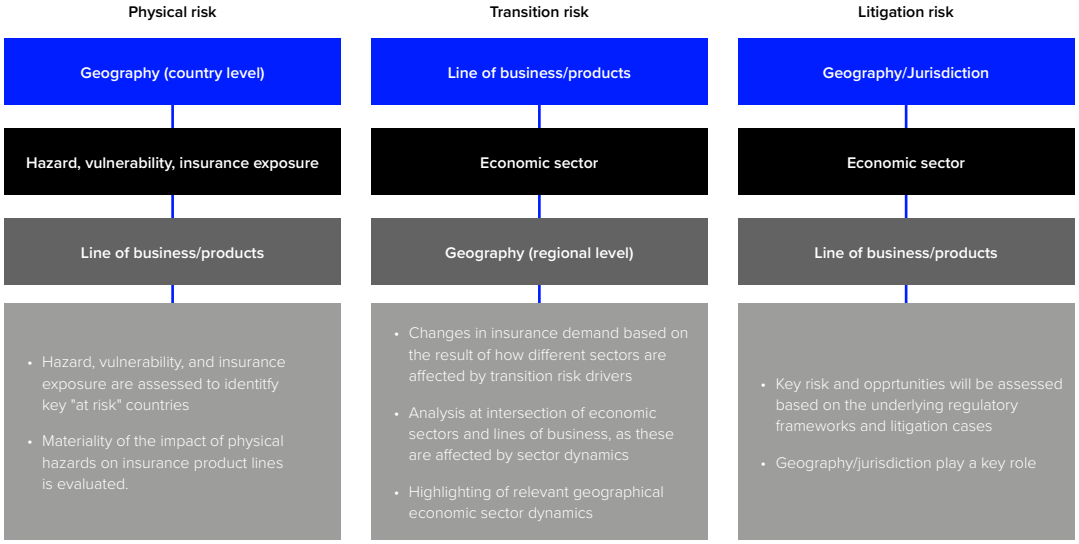
Climate change risks in the insurance sector can broadly be grouped into the three types of risk

1. **Physical risk**
2. **Transition risk**
3. **Litigation risk**

This includes the risk around value of assets, or at least where is this included e.g.: Carbon tax

(See Figure 2)[10]

Figure 2: Broad climate risk categories in the insurance sector



Source: UNEP's Principles for Sustainable Insurance Initiative
Full link: https://www.pwc.co.uk/services/sustainability-climate-change/insights/pwc-supports-unep-fi-psi-tcfd-pilot-project-climate-scenario-analysis.html

1. **Physical risks**. These are driven by changes in the frequency and severity of extreme weather events (**acute risks**), as well as by slower-moving climate factors, including temperature, precipitation, and sea level rise (**chronic risks**).

   Physical climate risks have attributes that are particularly relevant for the insurance sector:[11]
   - Risk is **nonstationary**: it evolves because of inertia in the geophysical system, especially given that further warming is 'locked in', even if net-zero targets are met.
   - Socioeconomic effects will be **nonlinear**, and impacts between (and within) countries and societies will differ considerably.
   - Effects will be **systemic**: a discrete event can set off a chain of knock-on effects.
   - Effects will be **regressive**: the poorest communities are typically the most vulnerable.
   - **Human systems are underprepared** to manage the rising level of physical climate risk and its effects. The pace and scale of adaptation will need to increase significantly.

2. **Transition risks.** These are driven by changes in regulation, technologies, and their relative costs, as well as by market demand and prices. These stand to change business dynamics in both insurance policyholder companies and insurance investment portfolio companies.
   Transition to a low-carbon economy makes the **risk of stranded assets** increasingly acute. Assuming policies to limit global temperature rise to 1.5°C:
   - 80% of hydrocarbon assets stand to become worthless.
   - $900bn stands to be wiped off the big oil and gas industry – one-third of their current value. (BP's share price has nearly halved over the past year). But this could be associated with the reduction in demand for oil, vs renewable (see FT article)

   Transitioning to a net-zero carbon world will lead to a **large-scale capital reallocation, impacting both the underwriting and investment side of the insurance business.**
3. **Litigation risk.** The frequency and scale of climate-related claims under liability policies, as well as direct actions against insurers for failing to manage climate risks are set to escalate.[12]
   - Globally, as of July 2020, 1,587 cases of climate litigation had been brought. While to date most have been brought in the US, the number of cases has also been increasing in the UK (62) and elsewhere in Europe (57).[13]
   - The increasing recognition of climate-related risks being a source of financial risk may in turn translate into prudential risks for the insurance industry, affecting its resilience of insurers (see the summary in Figure 3).

Figure 3: Climate-related risks and selected prudential risks

Prudential risks	Potential impact from climate change
Underwriting risk	Climate change is already affecting the frequency, severity and concentration of high impact natural catastrophes around the world, leading to increases in weather-related insurance claims.
Investment risk	The value of an insurer's investment portfolio may be affected if invested in sectors or assets, which may be at risk from either physical or transition-related factors.
Liquidity risk	A lack of reliable and comparable information on climate-sensitive exposures could create uncertainty and cause procyclical market dynamics, including fire sales of carbon-intensive assets, and hence reduce liquidity of these markets.
Operational risk	Physical climate impacts may affect the insurer's own assets, leading to increased operating costs, inhibited claims management capacity, or potentially stoppages of operations.
Reputational risk	Negative publicity may be triggered by insurers underwriting, or investing in, sectors perceived as contributing to climate change. Further, reductions in affordability or availability of insurance cover as insurers respond to climate risk may also lead to negative reputational impact.
Strategic risk	Physical or transition-related climate events, trends and uncertainty about future scenarios may present strategic challenges to insurers, which could inhibit or prevent an insurer from achieving its strategic objectives

Source: https://www.sustainableinsuranceforum.org/publication/draft-application-paper-on-the-supervision-of-climate-related-risks-in-the-insurance-sector/

Insurance protection gap

- **Climate effects are systemic**. They can cause market failures that affect both consumers and insurers. More frequent disaster events, in conjunction with the need to meet evolving regulatory requirements, can threaten company business models – and thereby **make insuring some risks unaffordable for customers, or unfeasible for insurers**.[14]
- This can lead to **underinsurance**—or to no **insurance** at all – which in turn can result in **substantial market dislocation**, including premium loss, higher rates of self-insurance, and an increased demand for disaster relief from the public sector.
- **Nearly two-thirds of the economic losses resulting from natural disasters in 2020** ($268bn in total) **were not covered by insurance**. The implied insurance protection gap of $171bn last year is growing, driven by the world's changing climate.[15] Not surprisingly, this is a particularly fast-growing problem in high-climate-risk areas:
  - In Florida, annual flood losses are projected to rise from almost $2 billion in 2019 to nearly $3 billion by 2050. The corresponding premium increase, from $800 to $1,200 (in 2019 dollars), may make flood insurance unaffordable to many residents. In turn, large portions of insurers underwriting business may become unviable.[16]
  - In California, the Department of Insurance reported that refusals from home insurers to renew policies rose by 31% state-wide in 2019, and that the percentage jumped to 61% in ZIP codes with elevated fire risk.[17]
- **The ultimate question** is who the ultimate bearer of risk should be – and particularly the likely growing need for public sector involvement as **'insurer of last resort'**.

Evolving insurance business models

- As the frequency and severity of tail events – formerly thought to be of low probability – increase, and climate-related risks in the insurance sector move **from idiosyncratic to systematic**, it is increasingly evident that the **insurance business model will have to change**.
- More than half of industry-executive respondents in a McKinsey report said that their industry's response so far has been underwhelming and inadequate – even though the great majority said that responding to climate risk is either *"very important"* or *"a top priority."*[18]

Pricing of risk

- **Many historical risk-pricing models will not predict the future appropriately**.
  - Insurance companies currently rely on historical loss records to guide underwriting and pricing risks. But with climate events becoming increasingly erratic, severe, and hard to predict, historical data are of declining usefulness.
  - Moreover, insurers' current models almost certainly underestimate the **interconnectivity and non-stationarity of risk**, particularly in locations that have low penetration of property insurance not least developing economies.
  - Preliminary findings from the Bank of England suggest that the industry is failing to capture the full spectrum of potential losses, such as a flood after a hurricane, and that generally the data used are of low quality.[19]

- It is also becoming increasingly **important to assess risks to assets and liabilities simultaneously**.
  - Reviewing investment- and underwriting-portfolio exposure simultaneously is currently not common in the industry, but it will become progressively more important as climate risk increases.
  - On the investment side, less-liquid asset classes that were appealing in an environment of sustained low-interest rates, such as real estate, are also exposed to climate risk, as is the underwriting side of the business.
- **Insurers can build greater resilience** by seeking to take low-probability disaster events into their reckoning, and by diversifying their portfolios. Risk models that assume nonstationary risk and that de-emphasise historical data will be especially valuable.

Climate change mitigation and adaptation: insurers as part of the solution[20]

Notwithstanding all the apparent challenges, climate change presents not only risks, but also **opportunities for the insurance sector**.

- **The insurance industry plays a central role in the management of climate-related risks** through its capacities as a risk manager, risk carrier, and investor.
  - Moreover it is **uniquely qualified to understand the pricing of risk**.
- Insurers are increasingly recognising **the value of going beyond risk pricing and transfer** when it comes to climate change risks.
- There is a growing dialogue and willingness to get involved in the **risk mitigation business** (i.e., working with clients to increase the resilience of their infrastructures, facilities, or supply chains) or **adaptation to climate disasters** (assisting in recovery efforts etc.).
- **There is also a need for increased cooperation between insurers and the public sector**.
  - Insurers could work with the public sector to **improve building standards and policies** (an analysis of risk models may suggest limits to building in flood-prone areas, for example).
  - Insurers will need to collaborate with governments as the number and severity of natural disasters rises, to **provide affordable coverage**, particularly given that the physical climate risks often hit the most vulnerable particularly severely.
    - Some insurers, particularly in the UK, have already begun to do this. Flood Re, for example, a joint initiative between the government and insurers, aims to make the flood cover part of household insurance policies more affordable.[21]
- **Divestment of insurance and underwriting portfolios from carbon-intensive sectors** is increasing, with progressively more leading insurers pledging to align their investment and underwriting portfolios with net-zero commitments.[22] For example:
  - Allianz stopped investing in coal-based business models in 2015. And they no longer insure coal power plants and mines.[23]
  - Aviva has recently pledged to use the ‘ultimate sanction’ and divest from 30 of the world’s largest oil, gas, mining, and utilities companies unless they do more to tackle climate change.[24]

Policy and regulation

- **Investors, regulators, and society generally are stepping up pressure on the insurance industry to respond** to climate risk as increasing portions of the economy and society stand to be affected.
- **Regulators**, in particular, **have a key role to play in identifying, monitoring, and assessing the impact of climate change risk** on the insurance sector.
    - They are increasingly working with the insurance sector to mitigate climate-related risks, with the ultimate objective of protecting policyholders and contributing to financial stability.[25]
- In general, policymakers globally are **strengthening regulatory frameworks and mandatory climate-related disclosure requirements**, not just within insurance, but across the financial sector more broadly. Some countries have progressed more than others:
    - The UK stands out. In November 2020, the UK government announced that climate risk reporting will become mandatory for large companies and financial institutions. This will come into effect for some companies as early as 2021, using guidelines from the Task Force on Climate-related Financial Disclosures (TCFD).[26]
    - In the US, under the new Biden administration, regulators are expected to increase scrutiny of insurers' disclosures regarding efforts to manage potential climate change risks.[27]

Useful sources

UNEP's Principles for Sustainable Insurance Initiative: PSI-TCFD-final-report.pdf (unepfi.org)

International Association of Insurance Supervisors: www.iaisweb.org

McKinsey: Opportunity and threats of climate change on insurance | McKinsey

[1] http://www3.weforum.org/docs/WEF_The_Global_Risks_Report_2021.pdf

[2] https://www.sustainableinsuranceforum.org/publication/draft-application-paper-on-the-supervision-of-climate-related-risks-in-the-insurance-sector/

[3] https://www.theactuary.com/2021/01/26/natural-disasters-expose-huge-insurance-protection-gap

[4] https://www.ncdc.noaa.gov/billions/time-series

[5] https://www.nytimes.com/2021/01/07/climate/2020-disaster-costs.html?action=click&module=Well&pgtype=Homepage&section=Climate%20and%20Environment

[6] https://www.ncdc.noaa.gov/billions/time-series

[7] https://www.unepfi.org/psi/the-principles/#:~:text=Our%20aspiration%20%20%20Principle%201%20%20,We%20will%20demonstrate%20accountability%20and%20.%20...

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[9] https://www.mckinsey.com/industries/financial-services/our-insights/climate-change-and-p-and-c-insurance-the-threat-and-opportunity

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[11] https://www.mckinsey.com/industries/financial-services/our-insights/climate-change-and-p-and-c-insurance-the-threat-and-opportunity

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[13] https://www.lse.ac.uk/granthaminstitute/publication/global-trends-in-climate-change-litigation-2020-snapshot/#:~:text=From%20May%202019%20%E2%80%93%20May%202020,were%20filed%20across%20six%20continents.&text=For%20non%2DUS%20cases%2C%2058,likely%20impact%20on%20climate%20policy.

[14] Ibid.

[15] https://www.theactuary.com/2021/01/26/natural-disasters-expose-huge-insurance-protection-gap

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[19] https://www.bankofengland.co.uk/paper/2019/biennial-exploratory-scenario-climate-change-discussion-paper

[20] https://www.mckinsey.com/industries/financial-services/our-insights/how-insurance-can-help-combat-climate-change

[21] How it works? Every insurer that offers home insurance in the UK must pay into the Flood Re Scheme. This Levy raises £180m every year that Flood Re uses to cover the flood risks in home insurance policies. When a customer buys home insurance cover, insurer can choose to pass the flood risk element of your policy to Flood Re for a fixed price. If a policyholder makes a valid claim for flooding, the insurer will pay the claim. Later on, Flood Re reimburses that insurer from the Flood Re fund.

For more, see:
https://www.floodre.co.uk/about-us/#:~:text=Flood%20Re%20is%20helping%20insurers%20to%20help%20householders,helps%20households%20at%20the%20highest%20risk%20of%20flooding.

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