The business view: a discussion about insurance & disaster risk

Interviewer: Gareth Byatt – Principal Consultant, Risk Insight Consulting
Interviewee: Cherie Gray – Global Lead, Sustainability & Market Development, Swiss Re

July 2025

Image: Swiss Re

Cherie,

Thank you for making the time to talk with me about the activities of Swiss Re to support disaster risk financing and insurance mechanisms to support disaster risk reduction. I'm looking forward to discussing how insurance and smart ways of financing can help governments, city and local authorities and communities around the world to reduce their disaster risk and to avoid disasters. Could we start with some general context about Swiss Re's work in disaster risk financing?

Cherie: *Swiss Re is one of the world's leading providers of reinsurance, insurance and other forms of insurance-based risk transfer. Through our work with clients, we fulfil our vision of helping to make the world more resilient. We have a distinct mission: together, we apply deep knowledge, intelligent data analysis and capital strength to anticipate and manage risk.*

Disaster risk financing mechanisms aim at providing financial protection and relief to countries and their citizens in the event of such disasters. Swiss Re can support various risk financing mechanisms that benefit our public sector partners and contribute to societal resilience with our risk insights and expertise in structuring risk transfer solutions.

Gareth: Thanks for this overview, Cherie. In general terms, is it fair to say that insurers and reinsurers around the world are seeing an increase in exposure to disaster risks and perils, and as a result, how they manage their own exposures is changing, including which markets are appropriate for them to operate in? Like many people, I have read a range of news articles about some insurers pulling out of certain geographies that they deem does not fit their risk profile.

Cherie: *Global insured losses from natural catastrophes reached USD 137 billion in 2024. Economic losses from disaster events in 2024 were USD 318 billion, of which 57% were uninsured. That left a large global protection gap of USD 181 billion.* [1]

In recent years, global insurance losses from natural catastrophes followed a 5-7% annual growth rate (in real terms). If this trend is maintained in 2025, insured losses may approach USD 145 billion in the 2025 calendar year. [1]

A long-term, economically sustainable insurance market is in everyone's best interests, including homeowners, governments, communities and insurers.

Insurability depends on the random nature of a risk. If risks increase to a level at which losses are certain and predictable, then insurance is not the right instrument to address such systematic changes to a risk landscape. A risk management tool doesn't work when it comes to permanent risk, for example an annually recurring flood, hurricane or wildfire. Pre-financing an expected loss is the remit of other financial instruments.

Unfortunately, in some markets, year after year, the cost of claims from record-setting catastrophes continue to surpass the premiums insurers are able to collect due to strict regulatory limits. If normal market forces are not able to function through supply and demand and risk-adequate pricing, this challenges insurers' ability to support the system.

Gareth: If I understand correctly, Swiss Re provides support to mechanisms including catastrophe bonds, risk pools and risk transfer mechanisms in public borrowing programs. These financing solutions are pivotal to getting disaster risk reduction right. The Swiss Re website section on public-private partnerships to support disaster risk financing provides examples of solutions being implemented by yourselves in various countries around the world. Could you explain a little further how these public mechanisms work?

Cherie: *I can summarise these types of mechanisms with some examples:*

Catastrophe Bonds
Catastrophe bonds represent a risk transfer mechanism in which an underlying sponsor (for example, a government) – with the help of capital market and insurance experts – securitises and sells off specific risks related to catastrophe events associated with natural hazards to the capital market.

[1] Source: Sigma 1/2025: Natural catastrophes: insured losses on trend to USD 145 billion in 2025 | Swiss Re)

Functioning like regular fixed income instruments, catastrophe bonds – in comparison to typical government or corporate bonds – offer investors higher interest payments to compensate for the risk of forfeiting some, or all, of the principal in the event of a disaster. Catastrophe bonds may use elements of indemnity-based insurance or parametric insurance to determine and process payouts to the sponsor should a natural catastrophe event occur.

Our in-house experts at Swiss Re can provide expertise and guidance on configuring an ideal disaster risk financing strategy using catastrophe bonds.

Risk Pooling
Pooling allows risk to be covered at an affordable price, by allowing diversification and spreading out administration costs. Risk pools provide an increased level of financial preparedness for natural catastrophes, protect government budgets from unexpected shocks and strengthen the resilience of the households and businesses covered by the risk pool. Whilst the objectives may be consistent, the design of a risk pool for a given country or region depends on the peril(s) covered, the maturity of the local insurance market, and the political objectives / appetite for such an intervention.

Swiss Re's Public Sector Solutions team works closely with existing pools such as Flood Re in the UK, the Turkish Catastrophe Insurance Pool (TCIP) and the National Flood Insurance Program (NFIP) in the US. We use our extensive knowledge to help other government organisations as they explore how risk pools could help them.

Sovereign debt with integrated insurance
Catastrophes associated with natural hazards, human-made disasters and other crises can lead to significant economic contraction that can limit a government's capacity to support a nation's recovery. By embedding risk transfer mechanisms in public borrowing programs, governments can be provided with the necessary financial room to manoeuvre in times of crisis and allows them to enhance the resilience of their borrowing to shocks and the sustainability of public debt.

At Swiss Re, we work closely with our public sector partners to raise awareness for the potential of this approach that helps to strengthen governmental resilience strategies.

Gareth: Thank you for this explanation with examples, Cherie – very interesting. On catastrophe bonds, I read in the Financial Times in July 2025 that catastrophe bond sales are proving popular with investors. [2]

I'd like to touch on parametric solutions as well. I have spoken to various people for a few years about parametric insurance models for disaster risk financing. In Swiss Re's range of solutions, is parametric insurance included in them? If so, is parametric insurance demonstrating solid benefits and good learnings?

Cherie: *Parametric insurance is indeed an effective mechanism to support fast and purposeful disaster resilience and recovery.*

[2] Financial Times - Catastrophe bond sales hit record as insurers offload climate risks (15 July 2025)

With conventional insurance, typically a premium is paid in return for a promise to cover a valid loss incurred due to an incident or named peril. Payment is made only after an actual loss assessment and investigation, with the goal to put the insured back in the position they were prior to the event.

Parametric insurance, on the other hand, is a form of insurance that provides the insured with a pre-determined payout that is based upon physical parameters of a concrete event. In other words, instead of insuring customers based on the magnitude of the actual losses incurred, parametric insurance solutions insure customers based on the intensity or magnitude of the actual event (for example, the shake intensity of an earthquake, or wind speed of a hurricane). The payout itself depends on the occurrence of such a pre-defined triggering event.

Such parametric risk transfer can serve a number of client needs and is commonly applied to gain protection from the financial impact of, for example, earthquakes, tropical cyclones, too much or too little rain, extreme temperatures, flooding, or crop yields (and other applications in the agriculture sector). In principle, any trusted and reliably measurable index can be used to define a parametric insurance product.

Because the payout is a pre-agreed amount, with funds released quickly after the trigger, it can help fund immediate post-disaster actions and support fast recovery. At Swiss Re we have a number of public sector clients who use parametric insurance for this purpose.

Gareth: Thanks for this context about parametric solutions, Cherie. For many years, research and reports by a range of bodies have indicated that upfront investment to reduce disaster risk is a good investment. Yet according to UNDRR and other organisations, there still isn't enough upfront investment and financing in reducing disaster risk. Appreciating that there are many factors and considerations to take into account, I wondered if you had any thoughts on this matter?

Cherie: *Whilst climate-change is contributing to increasing cost of losses, the main drivers are economic growth, urbanisation and inflation.*

Re/insurers price the presented risk. It is up to the risk owner to manage and reduce the level of risk. Whilst re/insurance can help cover the financial impacts of residual risk, upfront investment made in resilience and adaptation helps to reduce that level of risk.

Climate adaptation investments can generate economic benefits that outweigh initial spending by as much as USD 10 for every USD 1 spent [3], however key barriers we see are:

1. *Climate change is a global issue requiring local action - localised needs-based approaches often result in many projects competing for limited central funds which are unable to meet all the financial demands put to them.*

[3] Source: Resilience or rebuild? | Swiss Re

2. *Adaptation requires upfront investment - which can be costly and the countries most exposed to climate risk are often those with fewer financial and technical resources. This issue is compounded by the fact that adaptation responses are often only explored after a catastrophic event occurs, which is typically when funding is even less available.*
3. *Benefit measurement – adaptation projects often do not fit into traditional commercial financing models, as the 'benefits' on the upfront investment are often manifested as avoided loss rather than positive, additive cash flows. In addition, the return cycle has a long-term time horizon, so the parties putting up the initial investment may not receive the full benefit of it during their investment horizon.*

Gareth: Part of my work focuses on sustainable and resilient urban development for the world's cities and towns, which I publish ideas and perspectives about through my Urban 2.0 website. I talk with urban development specialists, policy makers and municipal authorities about the changing challenges of cities and municipalities to obtain workable insurance cover for certain hazards or perils.

By way of an example of seeing a parametric solution put in place in a city context, I understand that Swiss Re partnered with the reinsurance broker, Guy Carpenter and the data technology firm ICEYE to develop a parametric flood insurance policy for New York City that provides up to USD 1.1 million in emergency funding. [4] Guillermo Franco of Guy Carpenter mentioned this example to me in an interview we held in December 2023. I noted that this particular solution was awarded the Innovation Award at the 2023 Axco Global Insurance Awards. [5] It looks like a good case study on how to provide workable insurance solutions for cities to support vulnerable communities (with local context always being key). I imagine these types of solutions can work for non-urban geographic areas as well?

Cherie: *Parametric insurance can apply in both urban and rural settings. In fact, the agriculture sector applies and benefits from parametric insurance covers.*

Swiss Re has helped implement parametric insurance programs in many countries to support resilience building and recovery for communities. For example:

- *In China, the Ningbo City National Wetland Park (Hangzhou Bay) has parametric insurance against typhoon and drought risks, protection. covering the cost of recovery and protecting the economic carbon value of the site.*
- *In Mexico, Swiss Re worked with the National Institute of Anthropology and History (INAH) to develop a parametric earthquake coverage that provides critical financial protection for key archaeological sites.*
- *In India, a parametric cover for extreme heat has been implemented with Climate Resilience for All and the Self-Employed Women's Association to protect the daily income of outdoor workers who cannot work when the temperatures are too high.*

[4] Swiss Re - Assisting the City of New York to help vulnerable communities recover faster

Gareth: Linked to our Disasters Avoided model, and in particular our focal area of "good data", do you have any views / examples on how the use of data for disaster risk financing and insurance can help people to make more informed decisions on what products and services to take out?

For example, I was interested to read a Swiss Re case study about the Australian state local government mutual, which exists to help member councils proactively manage liability, asset and workers' compensation exposures whilst ensuring stability and sustainability of cost over the long term and includes the need to prepare members for the increasing cost and impact of natural catastrophe events and develop a climate resilience strategy. I understand that Swiss Re models have been used to support them with solutions. [5]

As another example of the use of data for cities, I know of a research project being carried out at Columbia University regarding smart cities. Data streams can inform the situation about the infrastructure of a city, which could be useful for insurance solutions.

Cherie: *Data is certainly key to defining and implementing good financial and insurance solutions. Insurers are risk experts and are well-placed to help both public and private sectors understand the exposures of their assets/projects to significant weather and "nat cat events" (events associated with natural hazards).*

We help our clients understand their risk by sharing our analytics capabilities and geodata on current and future climate risks and natural hazards – we provide our clients access to the same tools that we use for our own underwriting and risk assessment.

For example, Swiss Re's proprietary CatNet® is used by over 15,000 insurance professionals globally, as well as by governments and universities, to better understand natural hazards, weather patterns, flood risk and potential vulnerability of biodiversity and ecosystem services. We have ~50 scientists managing over 190 models and 200 terabytes of curated portfolio data.

Some users combine their independent data with Swiss Re data, as our datasets and methodology can be arranged to suit user needs - providing efficient, reliable and comparable insights, to help inform risk mitigation and adaptation investment.

Gareth: Thank you very much for your time, Cherie. We look forward to continuing to follow the work of Swiss Re.

[5] Swiss Re - Providing tools and insights to help local councils prioritise risk assessment