MarshMcLennan

Staying above water: A systemic response to rising flood risk

Executive summary

Marsh GuyCarpenter Mercer OliverWyman

Flooding is no longer a localized challenge, but a systemic, global threat.

Flood risk is increasing at an alarming rate in many parts of the world. More frequent and severe floods pose an increasing, complex threat to society, economic activity, and the environment. Risk levels are amplified by climate change, nature loss, and the concentration of people and assets in flood-prone areas.

Sea level rise is worsening the impact of storm surges in some coastal regions, while changing climate patterns are also increasing flooding outside traditional risk zones, for example, through record-breaking rainfall events.

Global economic losses from floods increased from \$504 billion in the 15 years between 1992 and 2006 to \$729 billion between 2007 and 2021 (in inflation-adjusted 2021 dollars).

The global population threatened by flooding is expected to rise from 18% now, to 36% in a 2°C warming scenario, to 45% under a 3.5°C warming scenario.

Flood insurance protection gaps are growing in many parts of the world. Losses are leading to challenging renewals and insurers exiting markets. In many countries, flood insurance is not even available.

Flooding creates significant social costs. Floods exacerbate inequalities, reverse development gains, and cause large-scale population displacements. With expected sea level rises these social costs could multiply, as up to 630 million people will live on land below projected annual flood levels by the end of this century.

Conventional strategies and incremental approaches are insufficient to address rapidly changing risk levels. Flood risk management and resilience are rendered ineffective by the short-term thinking of decision-makers, limited stakeholder collaboration, misaligned incentives, and unsuccessful financing models.

The main shortcomings of current approaches include:

- *Not recognizing that, how and why risk levels are changing:* Following an outdated paradigm of protection, society is overwhelmed by "off the chart" disasters.
- *Building in the wrong places:* The concentration of property and economic activities in high-risk areas is growing fast, while future risk levels are often ignored or underestimated.
- *Continuous environmental degradation:* Loss of nature — including the disappearance of coastal mangrove forests and coral reefs — increases flood risk.
- *Improper agricultural practices:* Agriculture often encroaches on natural flood buffer zones and increases flood risk by altering soil structure and water retention capacity.
- *Aging flood risk management infrastructure:* Urgent upgrades of existing drainage and flood protection measures are needed.
- *Underfunding and inefficient implementation of risk management strategies:* Many flood risk management tools are underutilized or unavailable to those most at risk.

Transforming flood risk management is critical. The scale and complexity of this challenge requires: deploying solutions in a forward-looking, cross-cutting, and collaborative manner; tackling the underlying risk drivers; and framing flood risk management as an investment opportunity.

Not everyone can be protected, insured, or bailed out. Society needs to be realistic about the limits and costs of flood risk management.

To accelerate the transformation of flood risk management, we present three ways forward. For each, we define the rationale and vision, outline the core components, and provide examples of implementation. In many locations, all three ways forward should be integrated into flood resilience strategies.

1. **Learning to live with floods.** Society must expect and prepare for flooding, with responses that enable a return to normal with minimal disruption after low-level, low-intensity floods. This means adapting to changing risk levels in a timely manner. Risk culture must balance fairness and individual responsibility. Risk data should be used effectively and knowledge translated into action. Community engagement initiatives should cultivate a culture of shared risk ownership, while innovative technologies link early warning to early action, and insurance solutions incentivize risk reduction.
2. **Building strategic protection.** Destructive, tail risk events still require protection, particularly for essential assets and locations where moving is not an option. In this instance, water is a design driver for urban development, while society increases investments in preserving ecosystems. Funding comes through innovative financial mechanisms that monetize resilience for investors and provide attractive returns. Standardized frameworks help investors measure resilience, and resilience assessments from rating agencies steer private sector investments. New risk finance pools for communities provide insurance and resilience finance. Investments in data and technology support schemes such as resilience bonds, while risk reduction makes it possible to extend insurance coverage through solutions such as resilience-focused, public-private risk pools.
3. **Preparing for relocation.** In high-risk locations, it may not be feasible to accommodate floods or build protection. Planned relocations of people and assets can be both economically efficient and equitable. Here, risk assessments serve as the basis for action, and countries lay the foundations for relocations early with anticipatory governance and long-term funding arrangements. Communities are empowered to contribute to decisions on acceptable levels of risk, identifying priorities such as cultural preservation. Mechanisms to redirect resources from disaster relief to pre-emptive buyouts enable societies to avoid a pattern of cyclical destruction and rebuilding. In countries with space constraints, relocations take place across borders and are governed by international agreements. New financing and funding mechanisms based on long-term cost minimization and distributional fairness are deployed at scale.

Bold steps from governments and the private sector are needed if society is to shift from a reactive to a proactive approach to flood resilience. Strong narratives about co-benefits are essential. Similarly, decision makers must be prepared to confront difficult trade-offs.

Key actions that can be taken now to overcome inertia and mobilize stakeholders include:

- **Build a risk culture that balances fairness and individual responsibility** by integrating resilience measures into existing risk models. An immediate priority is to replace protection goals with resilience objectives and a set of rules that do not shield stakeholders from the consequences of their risky decisions.
- **Transform land use and infrastructure planning** by switching to innovative mechanisms that ensure the enforcement of building standards, establish statutory requirements for combining green and gray infrastructure, and offer financial incentives for rural land management.
- **Mobilize financial capital for flood resilience** by standardizing co-benefit assessments and integrating them into environmental, social, and governance (ESG) and green finance frameworks. This also can be incentivized by strengthening the role of resilience ratings in awarding public and private contracts.
- **Shift to a resilience-focused insurance system** by removing regulatory barriers and creating innovative insurance models. This can be accomplished through building back better principles or community-based catastrophe insurance (CBCI) that create financial incentives for resilience interventions.

Marsh McLennan (NYSE: MMC) is the world's leading professional services firm in the areas of risk, strategy and people. The Company's 78,000 colleagues advise clients in 130 countries. With annual revenue over $18 billion, Marsh McLennan helps clients navigate an increasingly dynamic and complex environment through four market-leading businesses. Marsh provides data-driven risk advisory services and insurance solutions to commercial and consumer clients. Guy Carpenter develops advanced risk, reinsurance and capital strategies that help clients grow profitably and pursue emerging opportunities. Mercer delivers advice and technology-driven solutions that help organizations redefine the world of work, reshape retirement and investment outcomes, and unlock health and well being for a changing workforce. Oliver Wyman serves as a critical strategic, economic and brand advisor to private sector and governmental clients.

For more information, visit mmc.com, follow us on LinkedIn and Twitter or subscribe to BRINK.