



## Munich Re continues its flood mitigation work with resilience risk transfer solutions

In recent years, a new standard has been set in the frequency and severity of floods in the United States. The Mississippi River basin experienced record-long floods in 2019, bringing attention to the region's vulnerability to flooding as well as the area's extremely low flood-insurance penetration rates. Most of the area's flood infrastructure was erected after the Great Mississippi Flood of 1927.

The Mississippi River exceeded its banks from December 2018 until August 2019, becoming one of the longest floods in the history of the U.S.<sup>1</sup> According to [NOAA National Centers for Environmental Information](#), the event cost the country a total of \$9.2 billion. The impact of this economic loss was felt by communities and governments across the Mississippi basin as the

insured loss estimate was minimal. Munich Re estimates the insured losses for this event to be approximately \$200 million. Events like these highlight the importance of creating communities resilient to natural disasters, both from a risk transfer and a risk mitigation standpoint. Within disaster risk management, investment in risk-reducing measures is considered wholly separate from investment in risk transfer measures. But the two can actually be combined to create more efficient solutions.

Recently, a group of researchers from University of California, Santa Cruz; [The Nature Conservancy](#), and Munich Re, collaborated on a study that focuses on a combined risk transfer/ risk reduction solution. The study examines coral reef restoration and its

risk reduction impact for property exposed to storm surges along the coastline. While the scope of the study is limited to the benefits of coral reef restoration, we are confident that this combined solution is transferable to other regions focusing on nature-based and/or green solutions. We term this solution broadly as a Resilience Risk Transfer (RRT). Munich Re has been actively pursuing potential proof of concept for testing the RRT solution. One such example is our active partnership with the Mississippi River Cities and Towns Initiative (MRCTI). Our intent is to apply the RRT solution to the nature-based solutions within the Mississippi River basin, e.g., wetlands, bioswales, etc.

One of the major challenges of developing a specific RRT solution is

the unavailability of a comprehensive vulnerability study for a potential region. The issue is further complicated with changing views of risk that the regions experience with a warming climate. In recent times, Insurtech companies have offered the unique capabilities of using machine learning and high-resolution climate modeling to address the above gap. These models will be crucial in highlighting and identifying the most vulnerable communities which, in turn, will be useful in devising risk reduction solutions.

With our partnership with The Nature Conservancy, we can structure a

resilience risk transfer product by quantifying the impact of mitigation using nature-based solutions, and thus the reduction in premium over the time frame of the mitigation project. We are working toward developing a potentially novel/ visionary product, i.e., Resilience Risk Transfer, that can help communities recover financially from a flood event (and, potentially, other natural disasters) as well as focus on the risk mitigation requirements for the region. The RRT solution has the potential to restore the natural infrastructure that provides one of the most important protections from flood disasters.

For more information about our flood products in the U.S., visit the [Munich Re website](#) or contact Raghuv eer Vinukollu, Strategic Products Team Lead–Natural Catastrophe, Reinsurance Division, Munich Re America at [RVinukollu@munichreamerica.com](mailto:RVinukollu@munichreamerica.com).

<sup>1</sup>[https://www.weather.gov/lix/ms\\_flood\\_history](https://www.weather.gov/lix/ms_flood_history)

<sup>2</sup><https://static1.squarespace.com/static/5845a70859cc6819f2dfdb9e/t/5d39f7d7e-716af000189fc4e/1564080088427/RRF+-Press+Release%2C+MRCTI+July+2019.pdf>

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