This policy work group will explore how to increase a variety of economically effective risk reduction activities across a diversity of at-risk groups, and how this increased uptake can complement the purchase of insurance.

Risk Reduction and Its Link to Insurance

While having insurance in-place is one form of ex-ante resilience that transfers the risk of loss and thus speeds recovery after an event, it does not ultimately eliminate or reduce the actual damage incurred if an event does occur. On the other hand, pre-event risk reduction in its various forms does have the ability to reduce avoidable damages and prevent unnecessary loss of life when an event strikes, which as a result also makes recovery less challenging as well as contributing to resiliency. And while insurance does not reduce risk directly, it *can importantly provide incentives for risk reduction* by acting as a price signal of risk and by providing premium discounts to policyholders who protect their property against flood damage.

Unfortunately, event after event reveals the lack of sufficient risk reduction in place in impacted areas and escalating damages that ensue. "One report summed it up this way: 'Flood-related losses are often directly attributable to under-investment in public infrastructure, asset management, obsolete building codes and ineffective land-use planning. Unless governments fulfil their obligations to improve risk planning and mitigation, the widespread availability of residential flood insurance may remain commercially unviable (IBC2015) '."[1] It has been documented that the vast majority of federal disaster spending is focused on recovery as opposed to pre-event mitigation, and further much of the funding for mitigation is allocated in the wake of a major flood event, not before. And this despite flood risk reduction activities having been shown to be economically efficient with losses avoided on the order of $6.00 for every $1.00 invested.[2] So why isn't more risk reduction being undertaken prior to a flood event, especially as it generally makes economic sense to do so?

Existing Incentives between Insurance and Risk Reduction – Individual Property Owners

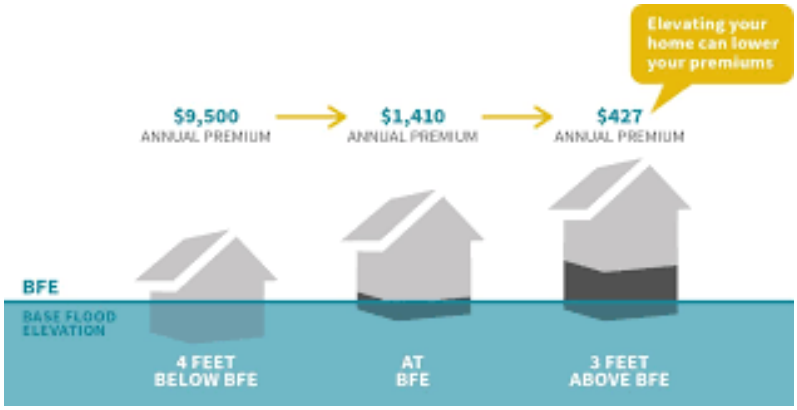
NFIP insurance premiums are primarily driven by two key components of the existing Flood Insurance Rate Maps (FIRMs): the location of the structure in a particular flood hazard area designated on the FIRM, as well as the structure's lowest floor elevation in relation to the FIRM's base flood elevation[3]. Consequently, premium discounts are currently primarily driven through these two rating components, (e.g. elevate your home above the BFE and the associated insurance premium decreases substantially – see below figure), and the NFIP does not give premium reductions for other individual flood risk mitigation measures beyond elevation. But while structural elevation in relation to the BFE therefore can significantly reduce insurance premiums, as well as being recognized as an effective measure for reducing flood risk overall, there are three main issues: 1) elevation of homes is often a least-preferred and costly alternative for property owners; 2) oftentimes it is not feasible for property owners to elevate residential structures due to the inherent structural

[1] Kousky, C., H. Kunreuther, B Lingle, and L. Shabman (2018). The Emerging Private Residential Flood Insurance Market in the United States. Wharton Risk Management and Decision Processes Center, July.

[2] Multihazard Mitigation Council (2017) Natural Hazard Mitigation Saves 2017 Interim Report: An Independent Study –Summary of Findings. Principal Investigator Porter, K.; co-Principal Investigators Scawthorn, C.; Dash, N.; Santos, J.; P. Schneider, Director, MMC. National Institute of Building Sciences, Washington

[3] National Research Council (NRC). 2015. Tying Flood Insurance to Flood Risk for Low-Lying Structures in the Floodplain. Washington, DC: The National Academies Press. https://doi.org/10.17226/21720.

characteristics of the property; and 3) NFIP premiums, and hence also premium discounts for elevation, often do not adequately reflect the risk.



(Source: A Stronger, More Resilient New York/FEMA)

Risk Reduction beyond an Individual Property Owner

Risk reduction is a broad concept and actions to reduce exposure in the interest of making the flood peril insurable are also broad, moving beyond an individual property owner. From a community risk reduction perspective, the Community Rating System (CRS) of the NFIP is a voluntary national program that since 1990 systematically encourages communities to better prepare for flood events, quantitatively scores communities across 19 high-level flood mitigation activities, and links community earned scores to discounts of flood insurance premiums for residents in those approximately 1,300 active CRS communities. Individual policy holders receive insurance premium discounts ranging from 5 to 45 percent depending upon the class 9 to 1 rating achieved by the community. However, while two-thirds of policies are represented by the CRS participating communities, nearly 95 percent of the total NFIP communities do not participate in the CRS, many with high-levels of flood risk. Also, many of the communities that do participate do not go beyond a class 5 rating at best, as well tending to accumulate a large percentage of their points in the less resource intensive activities that do not necessarily provide substantial flood loss reduction benefits.

And while embedded in the CRS are an array of flood risk reduction activities including land-use planning (e.g., open space preservation), building codes, mapping, and stormwater management, are these activities sufficiently addressed in the CRS as well as properly integrated with other community planning activities oriented toward both new and existing exposure? Further, given upstream and downstream community development impacts on flooding, it is also important to consider the role of broader watershed wide or regional exposure management and risk reduction activities. That is, how to best reduce portfolio exposure and in that sense target the highest risk areas to make the flood peril insurable.

Questions for discussion

- How can individual property risk reduction be achieved at scale?
- How can insurance and risk reduction act as complements to one another, especially with an increased role of the private market?
- How can a broad approach to risk mitigation be achieved, linking a variety of individual and community risk reduction activities?