

Houston and Hurricane Harvey: a call to action

A Post Event study of flood resilience in Houston and Harris County

Lynne Grinsell
Zurich North America

Rachel Norton
ISET-International



Serving customers for almost 150 years



- Founded in Switzerland in 1872
- Doing business in United States since 1912
- About 53,000 experienced professionals worldwide
- About 9,100 employees in North America
- Providing property and casualty, and life insurance products and services in more than 210 countries and territories
- Insuring more than 90 percent of the Fortune 500

**We are rated
AA-/stable**
by Standard & Poor's (S&P)

In North America, Zurich is a leading commercial property and casualty insurance provider with more than 100 years of service to our customers.

Why flood resilience?

A key focus area of Zurich's corporate responsibility strategy

- **Floods affect more people globally than any other types of natural hazard**
- **As insurers Zurich knows the impact floods have on people's lives and how much damage they can cause**
- **Providing the evidence and highlighting opportunities for both pre-event mitigation instead of post-event flood relief and ...**
- **Highlighting ways the post-disaster recovery period can be leveraged to build resilience.**



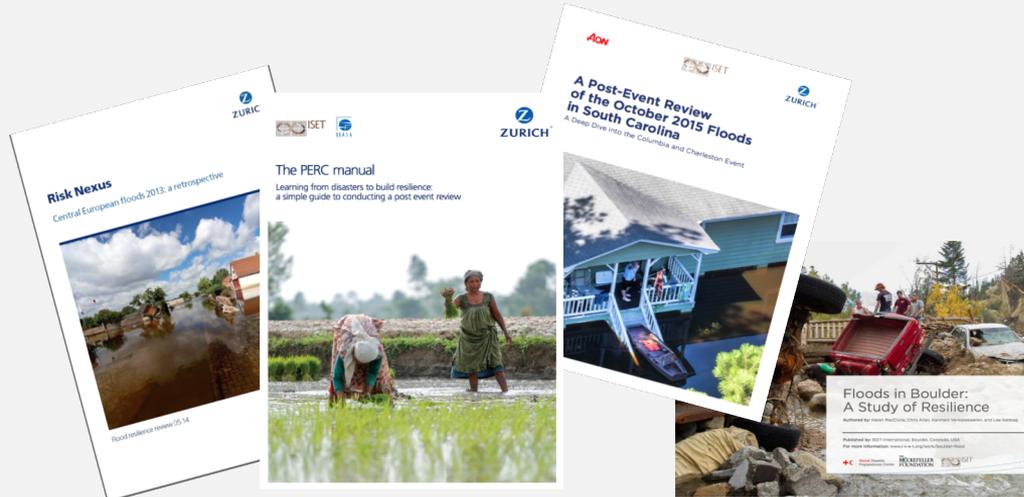
After a flood is just before the next flood

Learning from past flood events can help us think more holistically about how to manage flood risks



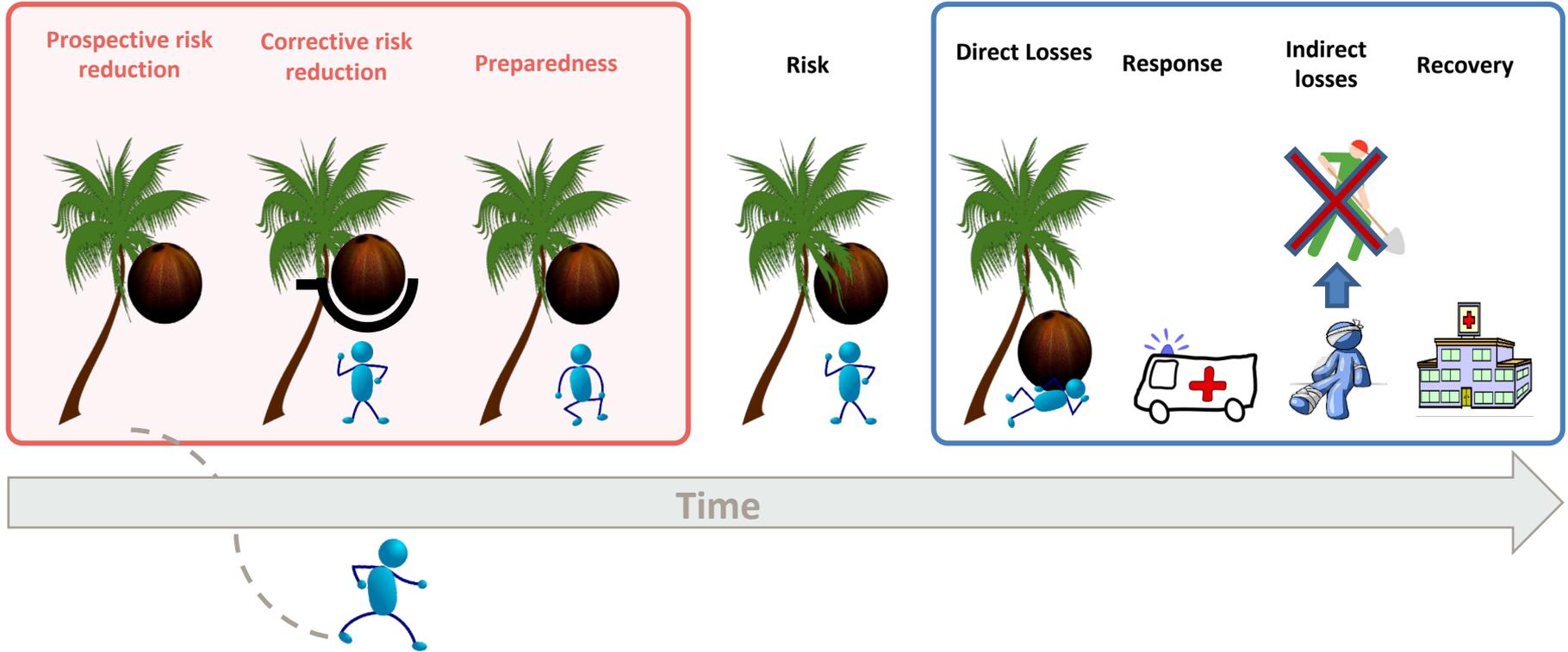
Post Event Review Capability (PERC)

- Learn from flood events and related catastrophes
- Look across scales and sectors, and across all elements of the disaster management cycle
- Amplify successes and identify opportunities for further improvement



Harvey report joins
a dozen other
PERC studies
conducted around
the globe

Disaster Risk Management and Coconuts



Community Preparedness And Resilience Are Essential To Help Mitigate Flood Risk

Adapt To Changing Risk Landscape

- Future floods will bring new surprises.
- Preparedness and resilience can help communities anticipate and withstand these changes.
- Planning for this uncertainty should include:
 - Building critical infrastructure and houses outside of floodways
 - Incorporating fail-safe design elements to help avoid catastrophic impacts
 - Developing a multi-hazard approach to help prevent failure of individual elements from undermining resilience of others

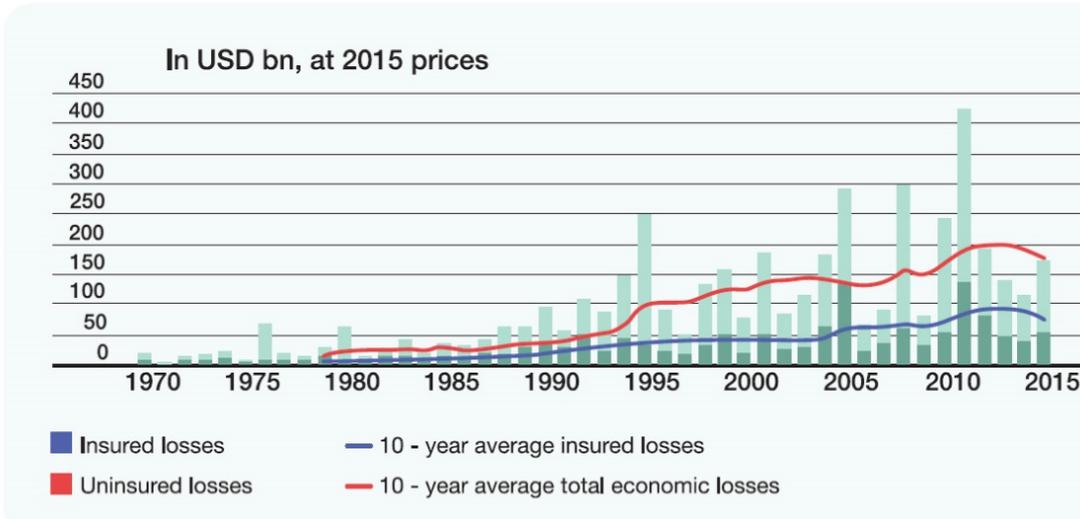
Together, these tactics can help fortify a community's ability to confront the rising frequency and severity of floods, and mitigate physical and financial impact

Build Green Infrastructure

- Green infrastructure can serve as a flood buffer for households and communities.
- Incorporating parks and greenways into a community's architecture enhances recreation and aesthetics - and also helps minimize risk by shielding community members from rising flood waters.
 - Porous pavements and "green" roofs can help reduce flooding around developments and improve water quality.

- The protection gap from natural hazard (insured vs. total economic) is USD >100 bn per year continually.

Economic versus insured catastrophe losses, 1970–2015



Source: “investing in resilience” – Climate Wise report, 2016

- Under current assumptions for population growth, urbanization and climate change: We run the risk that floods and other natural hazards may become less and less insurable.
- As an insurance industry, we will focus less on the classic “policy-for-premium” model. We explore also a **“non-traditional” role** of insurance to make residual risk more insurable: Risk awareness, risk mitigation, resilience building. Working with customers on risk quality is an inherent part of Zurich’s business model.

Catalyzing transformative change



ISET-International works with:

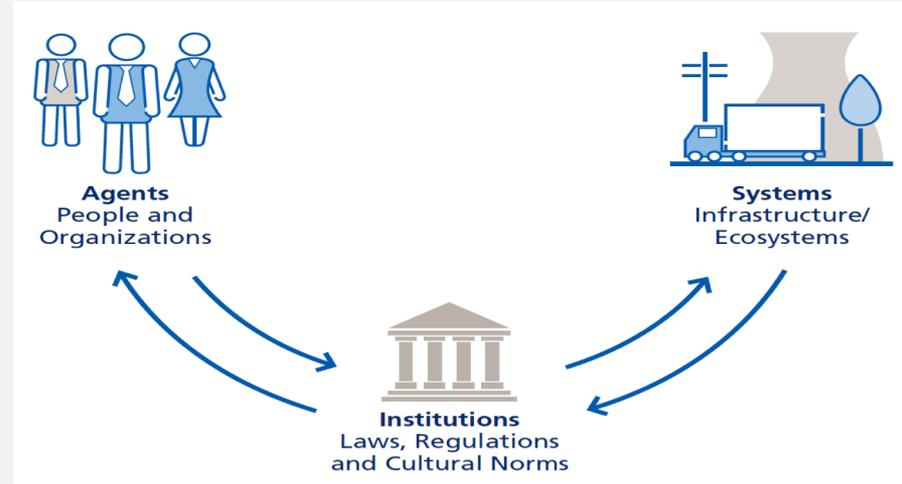
- 100 Resilient Cities
- Zurich Flood Resilience Alliance
- Asian Cities Climate Change Resilience Network
- Red Cross Global Disaster Preparedness Center

- Founded in 1997
- Offices located in Boulder, CO; Hanoi, Vietnam; Delhi, India
- Expertise on:
 - Resilience, climate change adaptation & disaster risk reduction;
 - Implementation of resilience building programs;
 - Forensic post-disaster analysis.



PERC Approach

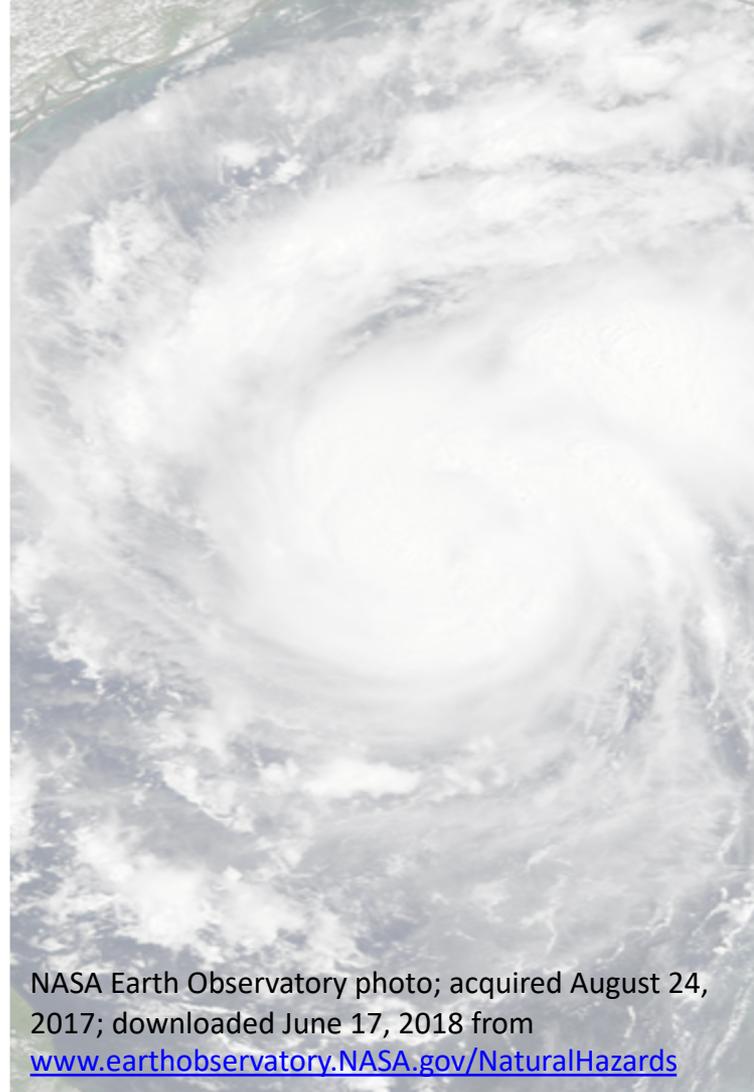
- Desk research using news articles, reports and papers to understand both current event and flood history
- Visit most affected areas
- Conduct informal interviews
 - Government
 - Businesses
 - Non-profits
 - Researchers
 - Flood-impacted households
- Deconstruct why the flood manifested in the way it did and became a disaster



Why Harvey?

- The storm itself – immense, but in ways that are likely to become more common with the warmer sea surface temperatures that we've seen in recent years
- The attention the storm drew, providing a wealth of other reports and news articles to draw from
- It's the third successive flood in three years
- Houston's position as one of the leading business cities in America

Report highlights the business sector – how it was impacted and how it is supporting recovery.



NASA Earth Observatory photo; acquired August 24, 2017; downloaded June 17, 2018 from www.earthobservatory.nasa.gov/NaturalHazards

Lessons

- Built environment
- Regulatory landscape
- Culture of awareness
- Flood insurance
- Coordination & Collaboration

“Even the best large-scale risk reduction efforts, combining grey infrastructure such as dams, levees, drainage systems and pumps with ‘green’ solutions such as leaving space for water, using porous pavement to increasing infiltration, and designing parks to provide floodwater storage co-benefits, will never reduce flood risk to zero.”



Recommendations: Preparedness & Risk Reduction

- Use forward-looking scenarios to plan for the future.
- Limit or prevent federal insurance coverage of new properties in flood zones.
- Address household preparedness as part of business preparedness.
- Make flood insurance more universally appealing for homeowners and businesses.



Recommendations: Response

- **Trust the public with information that helps them manage their safety and preservation of assets.**
- **Partnerships and relationships are fundamental to resilient response and recovery.**
- **Use existing assets to provide critical information during disasters.**
- **Improve messaging around disaster events to more accurately reflect real risk.**



Recommendations: Recovery

- **Businesses can play a positive role for their employees and the communities in which they work through providing support to impacted employees and/or communities.**
- **Repeat loss properties should not be rebuilt to their prior condition.**
- **Owners need all their options on the table simultaneously.**
- **Increase dissemination of flood risk reduction options for homeowners and businesses.**





Not acting now to build flood resilience in Houston and Harris County will potentially be very costly in the future.

Thank you

<https://www.zurich.com/PERC-Houston>

<http://www.zurich.com/en/corporate-responsibility/flood-resilience/>

