

BUILDING RESILIENCE IN POST-DISASTER SETTINGS

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What Shakespeare says about Disasters

"This is the excellent foppery of the world, that when we are sick in fortune, often the surfeit of our own behaviour, we make guilty of our disasters the sun, the moon and the stars [...]. An admirable evasion of whoremaster man, to lay his goatish disposition on the charge of a star." King Lear, Act1, Scene 2.



Illustration by Abby Van Muijen

LIGHTNING
HURRICANES
ACCIDENTS
ECONOMIC

RISKS

DISEASE

TAIL DRAUGHT
THEFT

CRIME

EARTHQUAKES
TORNADOES

FLOODS

FIRE

STORMS

Lightening
Hurricanes
Accidents
Economic

Risks
Disease
Hail: Draught
Theft
Crime
Earthquakes

Tornadoes
Floods
Fire
Storms

Vulnerability. Resilience. Strength

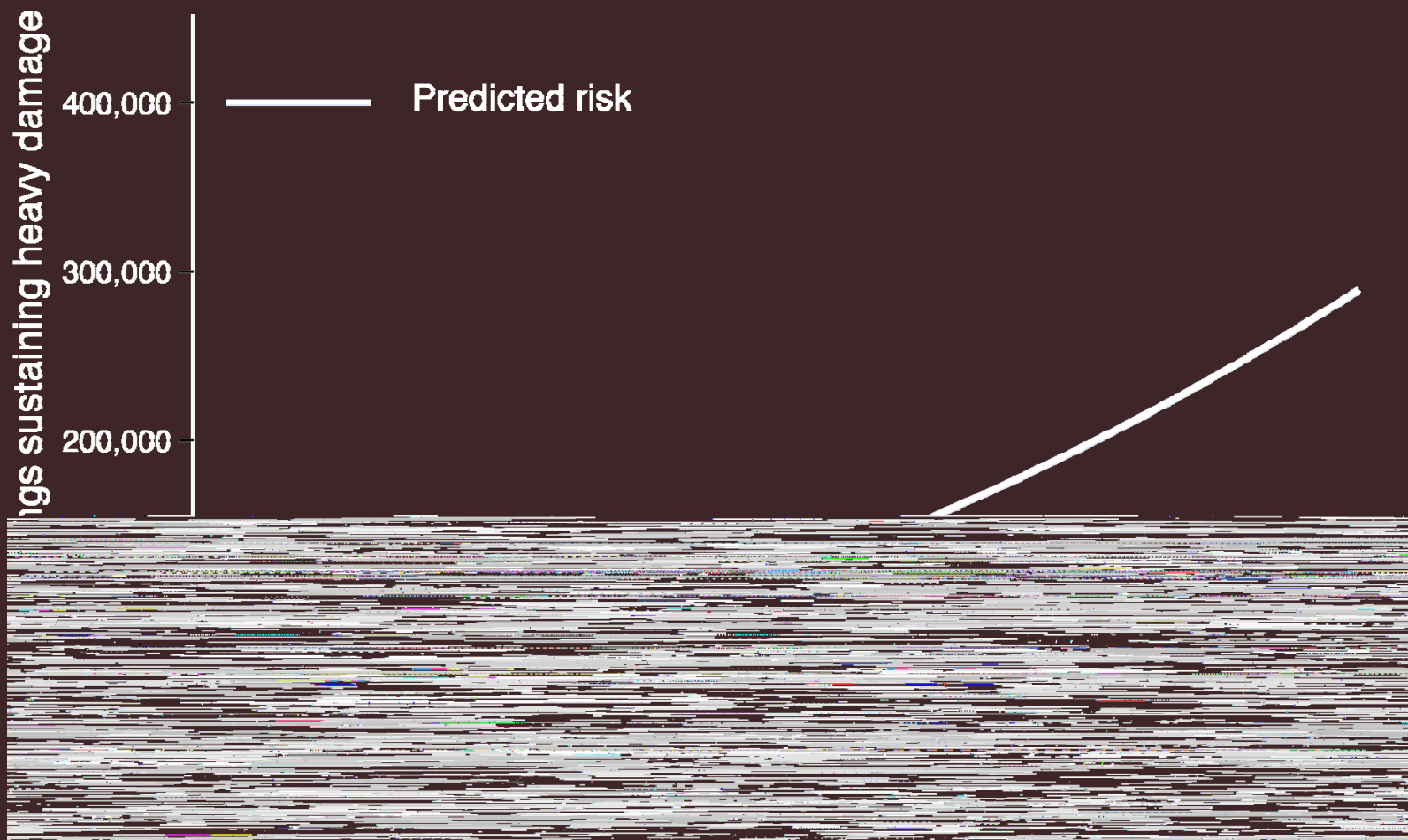


“Riskscapes” are Dynamic

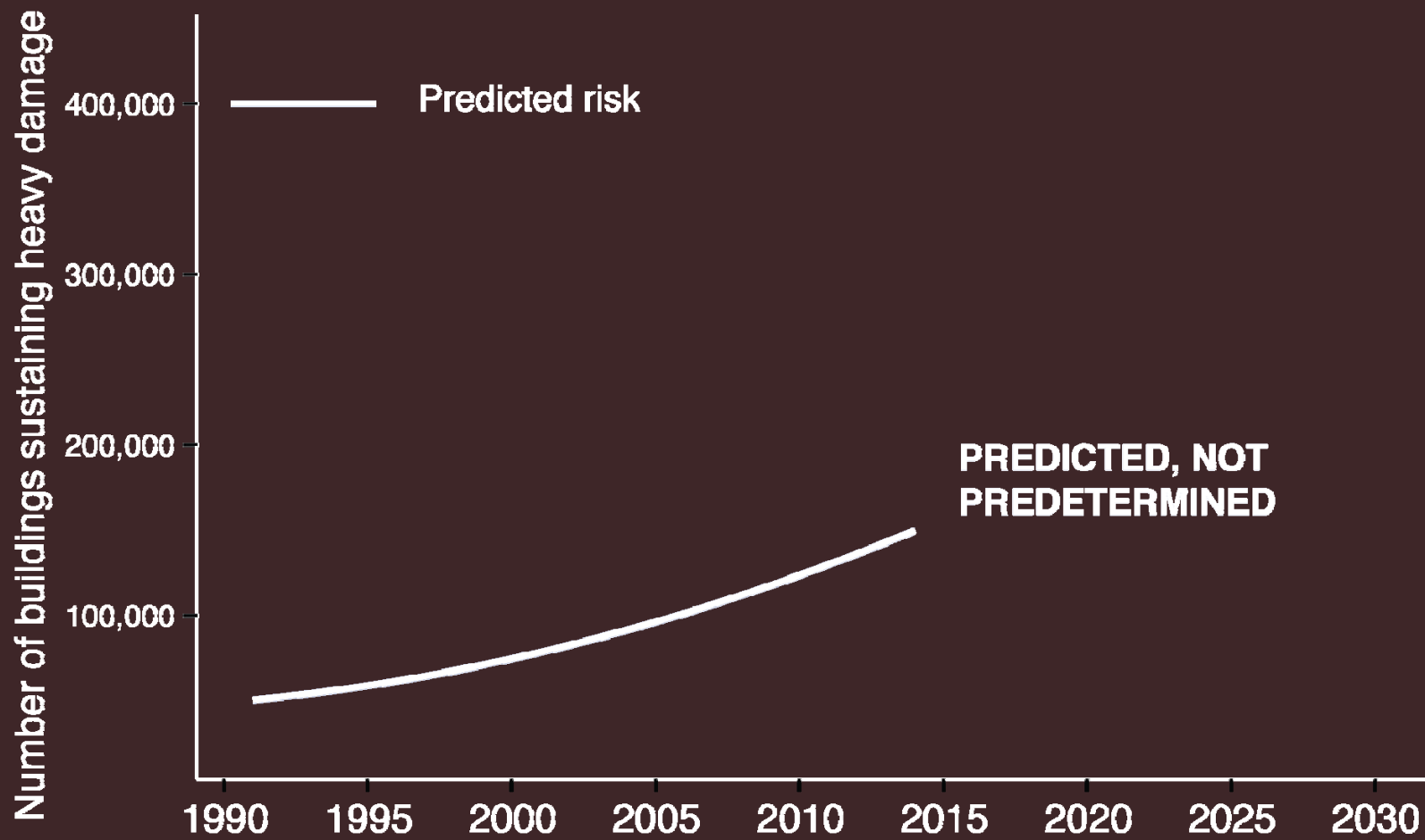


Source: Anne Sanquini

Evolving Risk

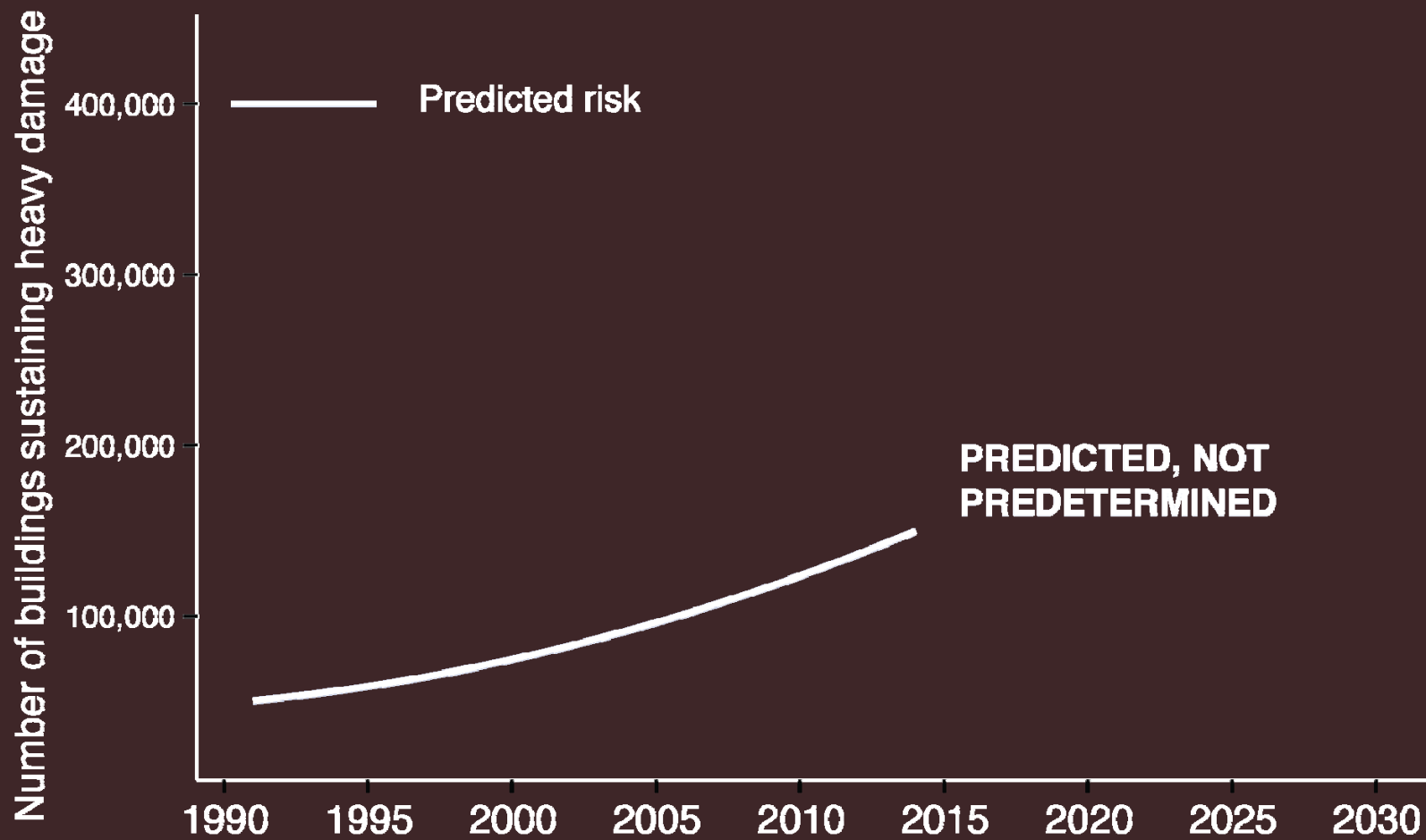


Evolving Risk



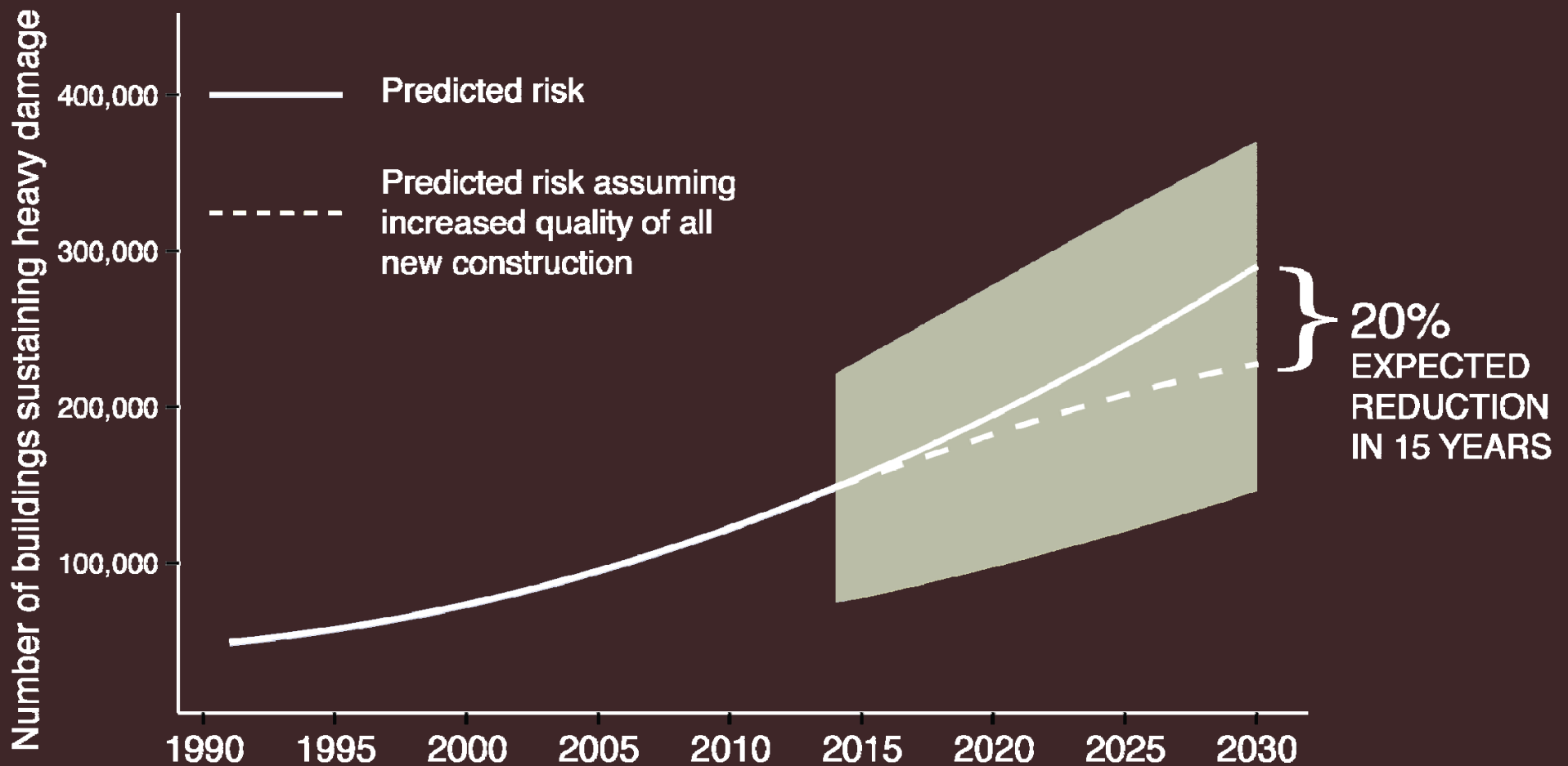
Evolving Risk

What if all new construction is better designed for earthquakes?



Controlling Evolving Risk

What if all new construction is better designed for earthquakes?



HAZARD MODELING

NOVEL SPATIAL ANALYSIS TECHNOLOGIES FOR MODELING SPATIALLY DISTRIBUTED HAZARDS [COLLABORATION W/ GOOGLE AND USGS]



EXPOSURE MODELING

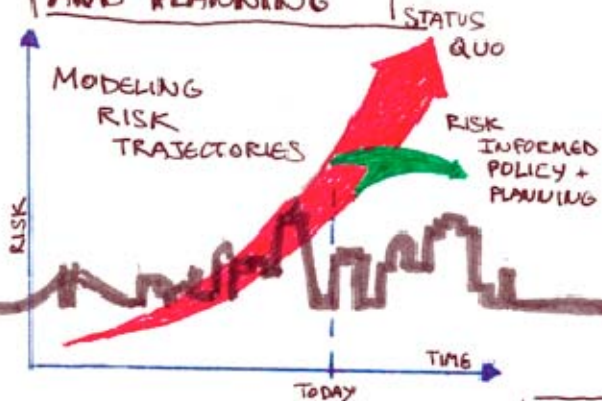
NOVEL TECHNOLOGIES FOR CAPTURING EXPOSURE AND ITS CHANGES OVER TIME [GOOGLE, WORLD BANK, GFDRR]



DAVID'S RESEARCH

STORY BOARD

RESILIENCE POLICY AND PLANNING



PRODUCING EVIDENCE AND DEVELOPING TOOLS TO PROMOTE SUSTAINABLE AND RESILIENT CITIES

VULNERABILITY MODELING

STATISTICAL PROCEDURES FOR MODELING FRAGILITY INCLUDING TIME-VARYING FRAGILITY [GEM, GFDRR]



DISASTER RECOVERY

MODELING RECOVERY OVER TIME [GEM, UCLA]



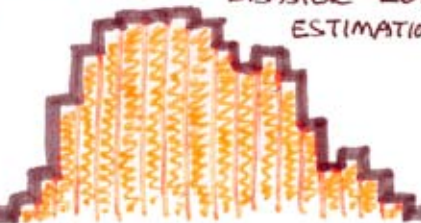
POST-DISASTER DAMAGE ASSESSMENT



REMOTE SENSING AND GEOSTATISTICAL ANALYSIS FOR RAPID POST-DISASTER LOSS ESTIMATION.

LOSS PREDICTION

PROPAGATING UNCERTAINTY IN URBAN OR REGIONAL SCALE DISASTER LOSS ESTIMATION



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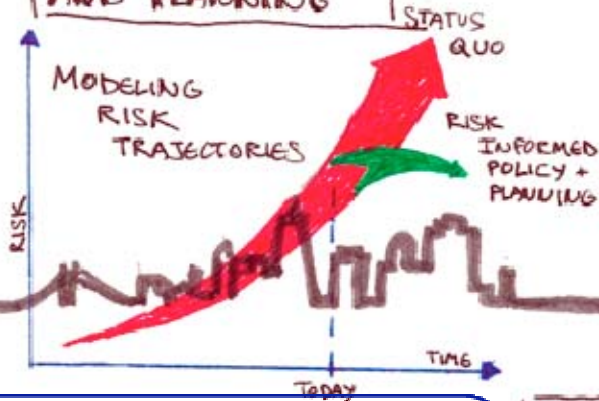
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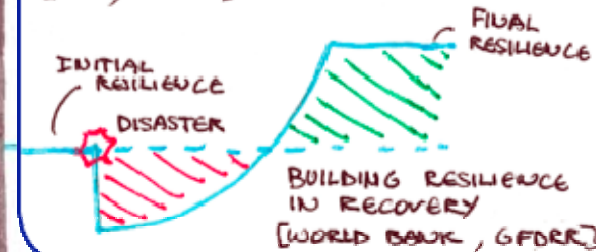
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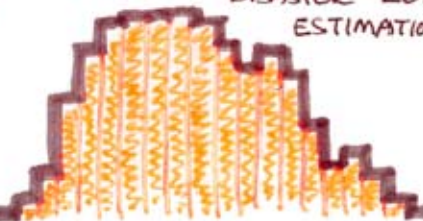
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2010 Earthquake in Haiti





Source: David Lallemand



Source: Anna Konotchick



Source: David Lallemand



Source: Jean-Christophe Adrian (UN-Habitat)

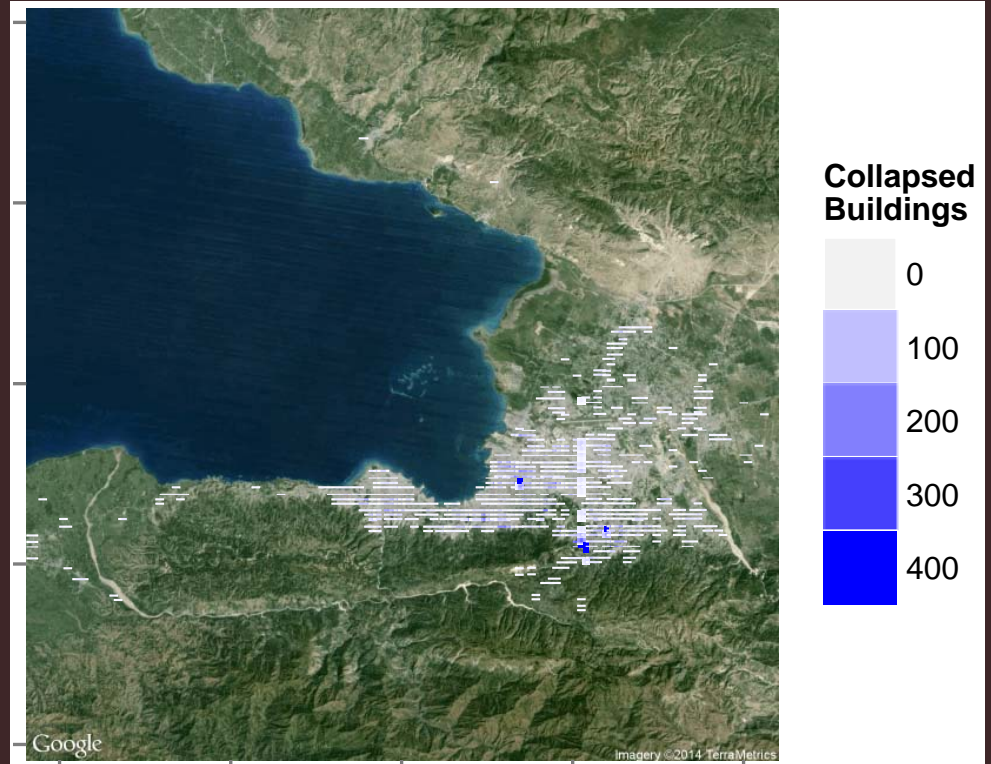


Source: Jean-Christophe Adrian (UN-Habitat)

Remaining Earthquake Risk



Actual 2010 event
31,000 buildings collapsed



Expected Plausible Event
63,000 buildings collapsed

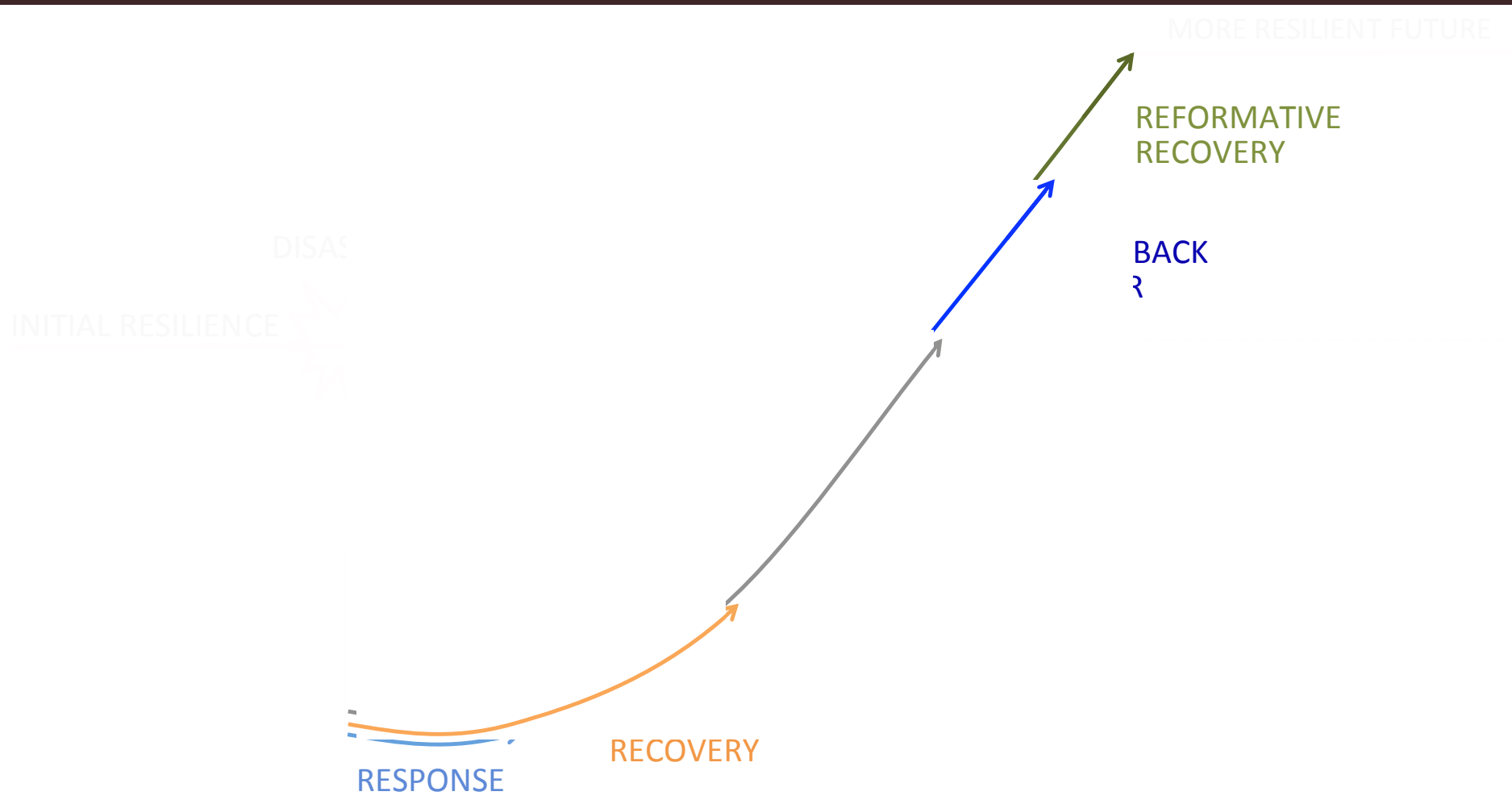
Post-Disaster Risk Reduction

- Remaining risk is very high (not only earthquakes)
- 5-6 years after the earthquake, the city is not any less vulnerable...
- Trying to answer “why?”

MANAGING POST-DISASTER RISKCAPES

MAIN POINTS:

1. The need to reframe post-disaster recovery in terms of risk and resiliency.
2. The need to define “acceptable risk.”
3. The need to control risk in uncontrollable settings.
4. The need to address structural causes of vulnerability through reformative recovery.

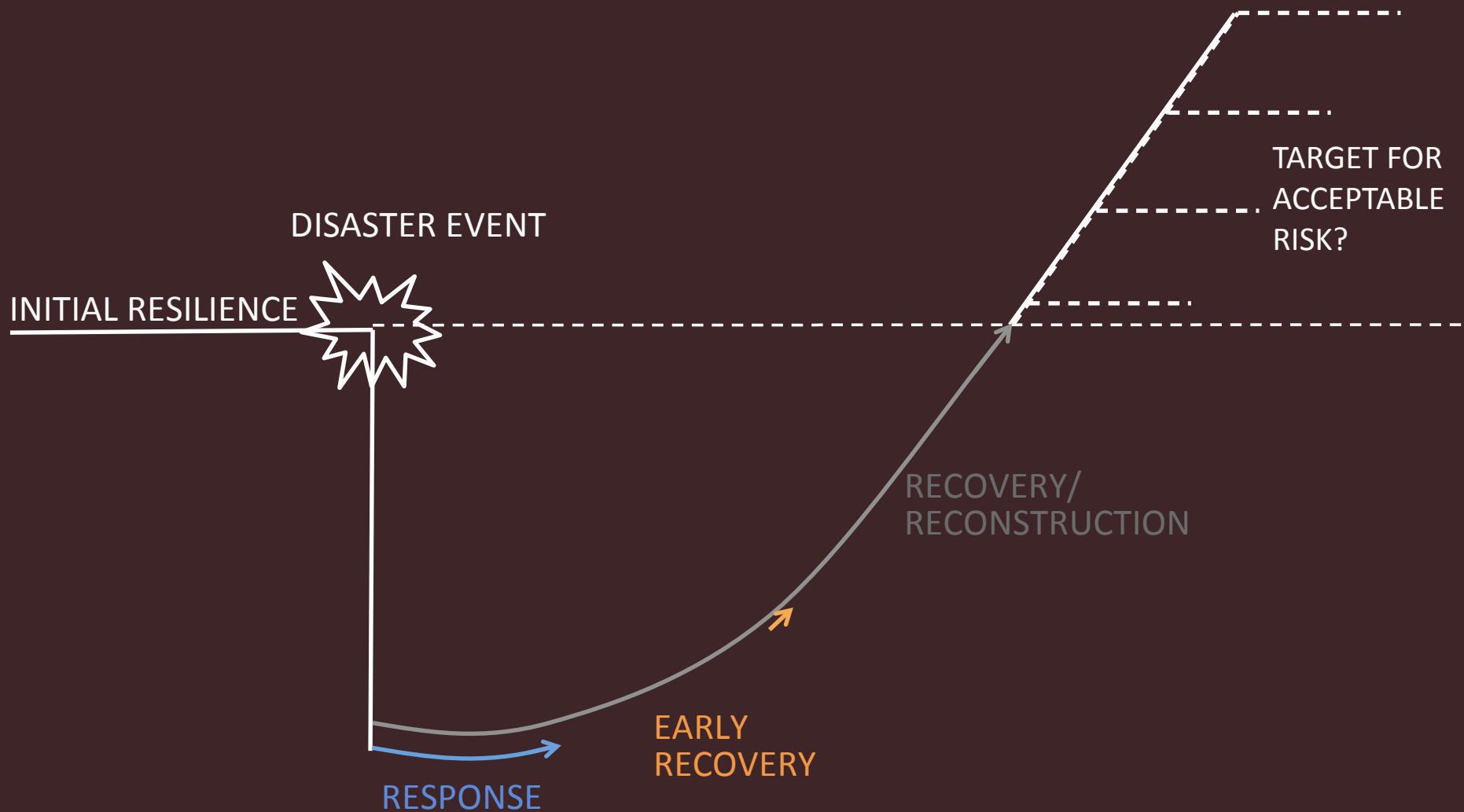


Reformative recovery: The concept of “reformative recovery” is set in contrast to the traditional “restorative recovery.” Reformative recovery by comparison is a process through which new dynamics for resilience are created, often through government and social reform.

MANAGING POST-DISASTER RISKCAPES

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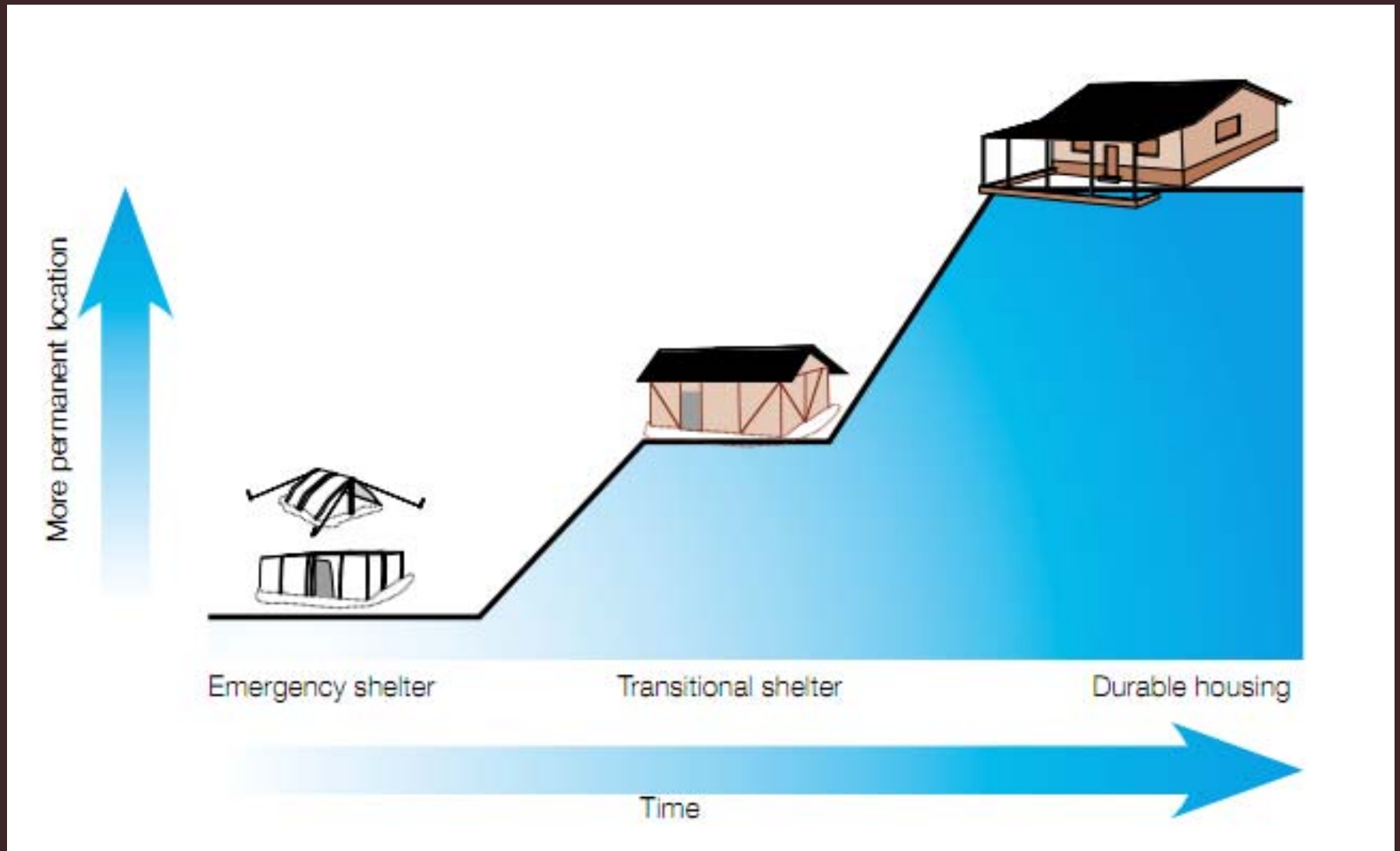
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One of the obstacles for risk reduction in post-disaster Haiti was that while everyone agreed that risks should be reduced, no one knew what it should be reduced to.

In the absence of properly understood standards for 'acceptable risk', agencies tended to either avoid action altogether, ignore using risk as a criterion, or to significantly over-design their interventions.

Example: Transitional-Shelter Standards



How do you define acceptable risk? Who defines acceptable risk?

This is:

- An ethical issue (what is morally acceptable?)
- A practical issue (what is possible given limited resources?)
- A cultural issue (what is appropriate?)

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In Haiti as in many contexts, decisions that determine risk are made mostly at the household level, outside of any regulatory process.

Risk embedded in decision of where to build:

Canaan 2010



Risk embedded in decision of where to build:

Canaan 2013



Risk embedded in decision of what to build:

Self-construction



Source: Anna Konotchick

Risk embedded in decision of what to build:

Self-construction



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Constructing new riskscapes



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Constructing new riskscapes

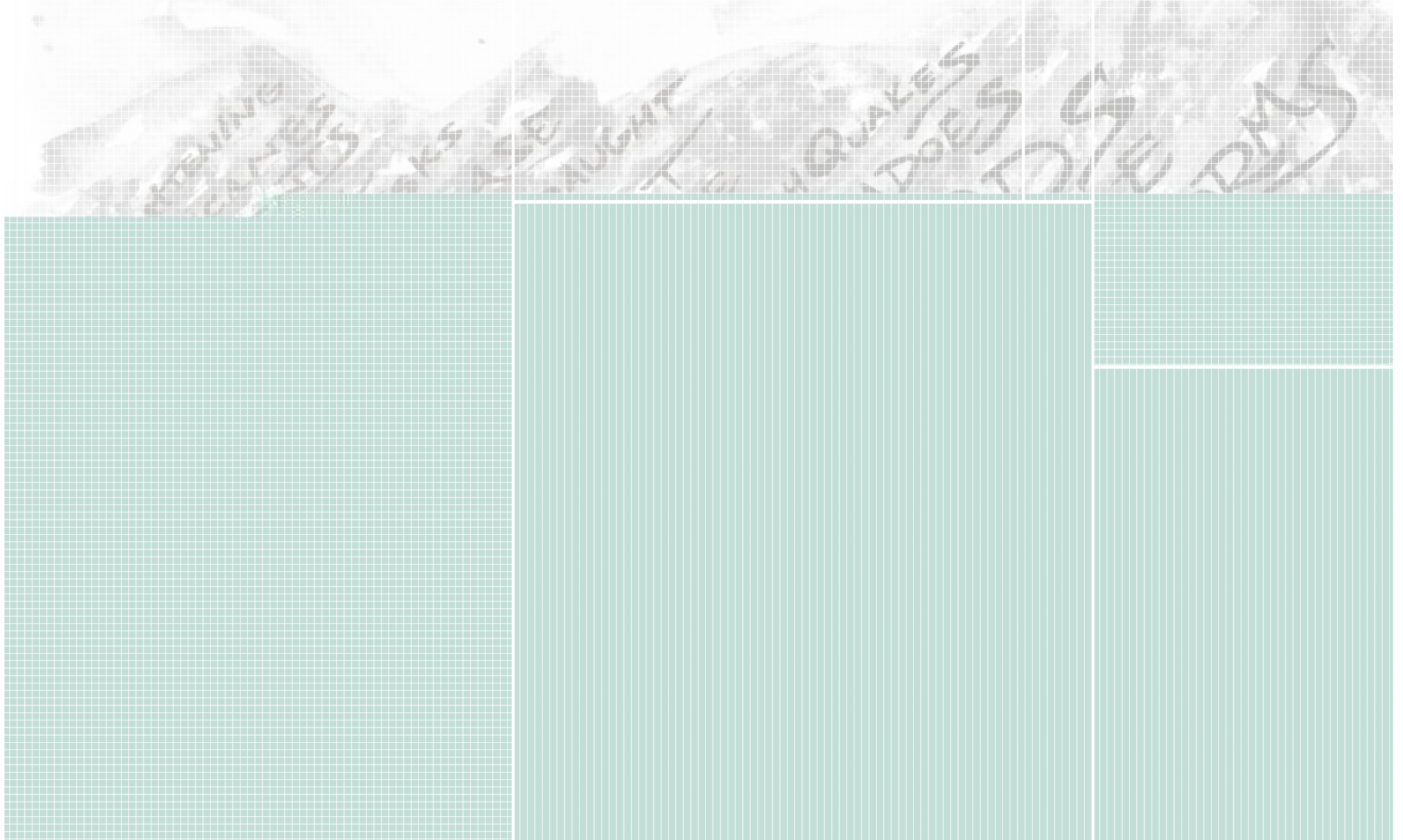


Source: Anna Konotchick

How do you promote risk reduction when the risk creation is outside any formal process?

Promote self-compliance to safe practices

Recognize that households make rational decisions about their own risk, based on their perception of the riskscape in which they live.



It was found that outcomes falling short of “acceptable risk” therefore reflect:

- (1) A lack of awareness of various risks, their frequency and their significance.
- (2) A lack of knowledge of how to address these risks. (Cholera example)
- (3) Socio-economic constraints for addressing these risks.

MANAGING POST-DISASTER RISKCAPES

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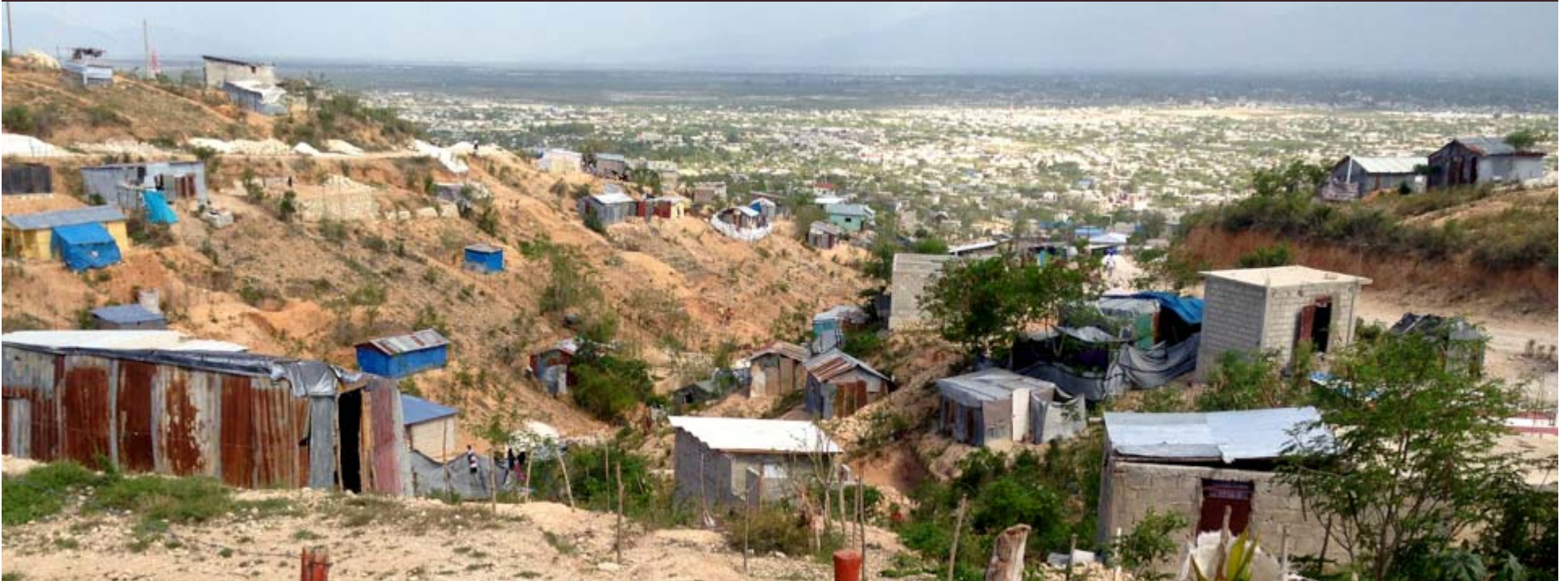
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While we focus on this...

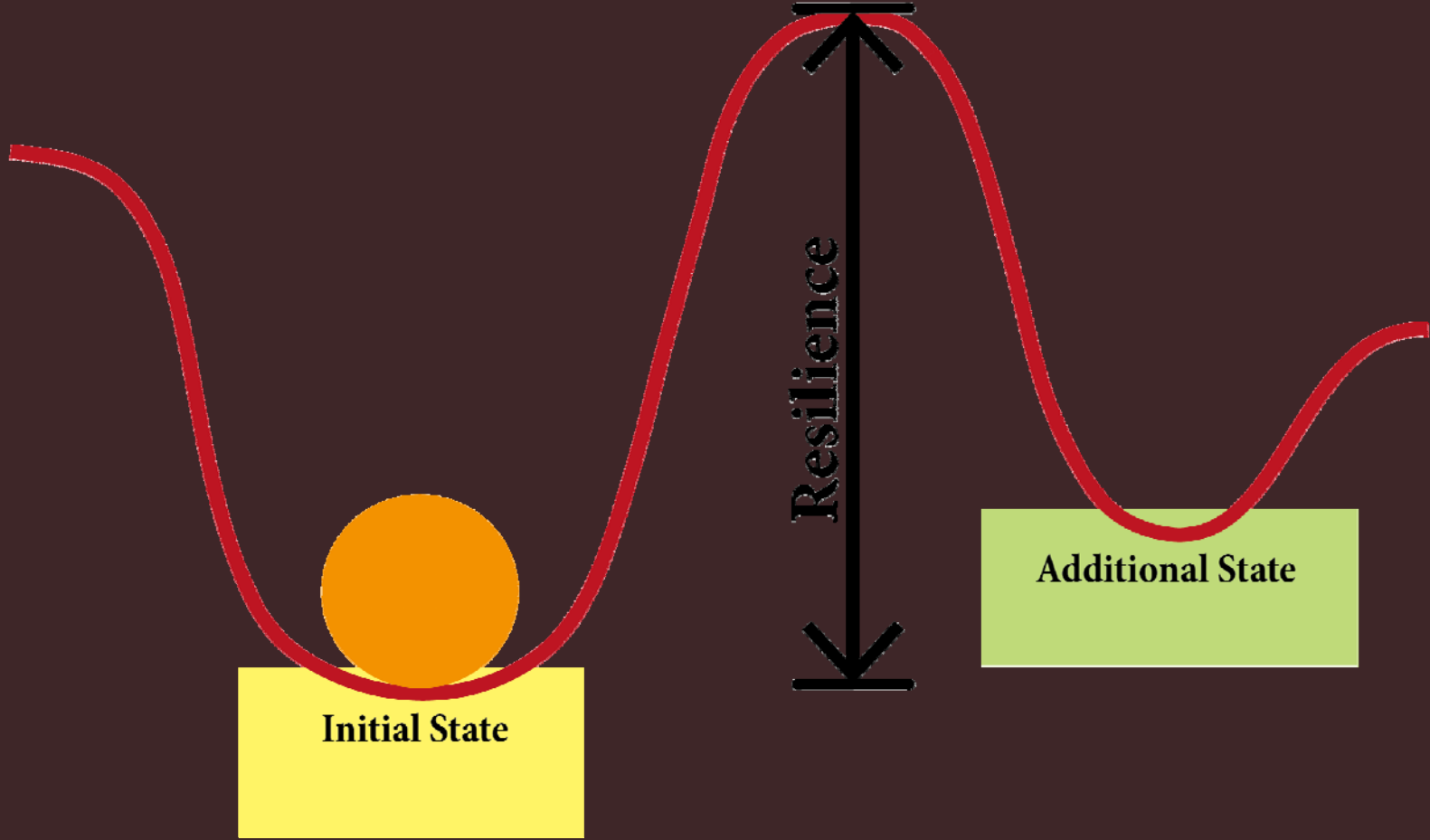


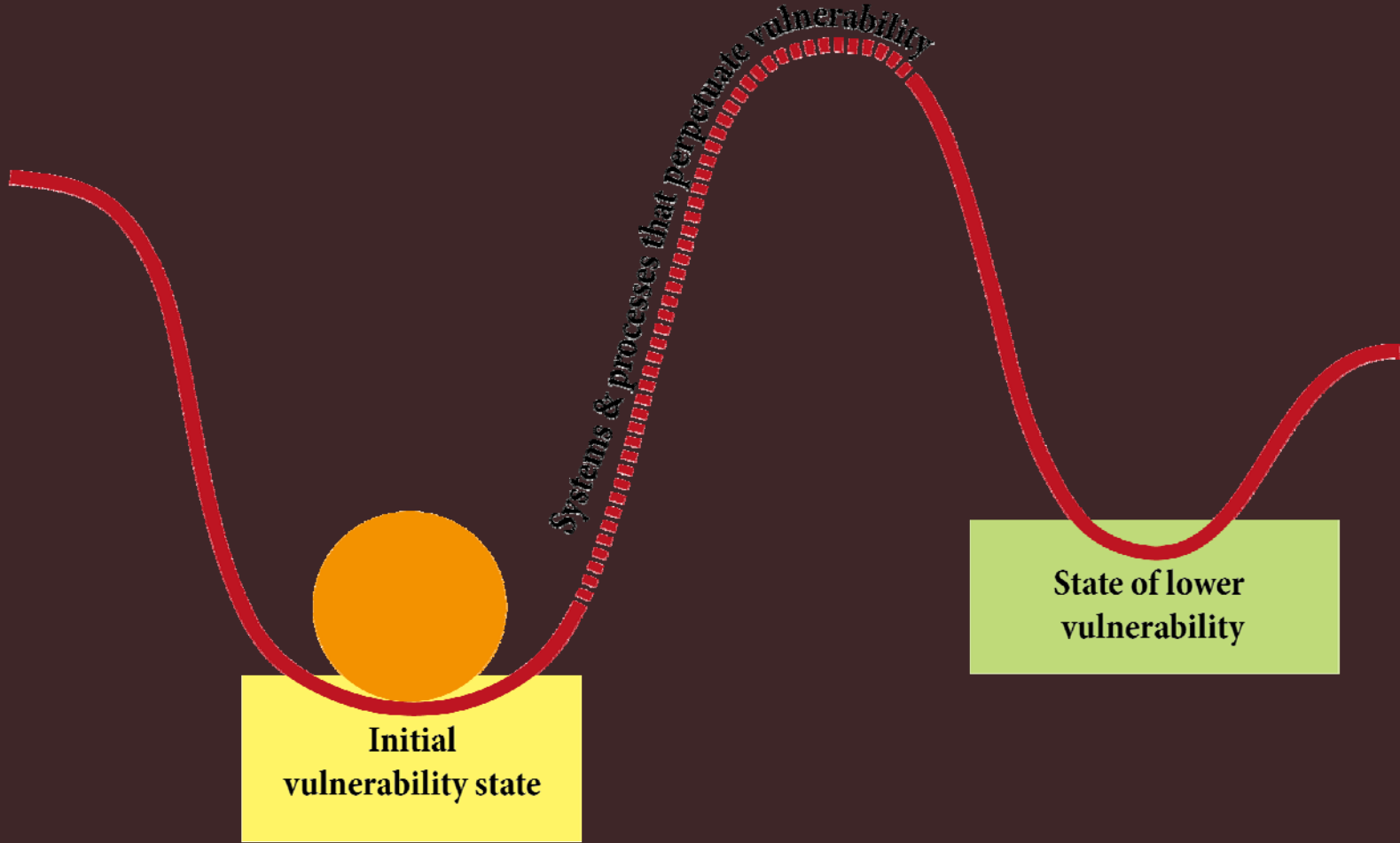
While we focus on this... but this is a also a reality.



We've focused so much on how to build resilience, but have ignored the systems that are creating vulnerability.

If we want to talk about resilience, than we have to recognize that the systems that create and perpetuate extreme vulnerability are extremely resilient.





Reformative Recovery

Reform: “Make changes in something (typically a social, political, or economic institution or practice) in order to improve it.”

It doesn't throw away the existing, but reshapes it in fundamental ways.

Reformative Recovery

“Reformative recovery” is a process through which new dynamics for resilience are created, often through government and social reform.

While these long-term changes cannot realistically be fully addressed during the reconstruction process, “reformative recovery” should promote these debates and begin the reforms.

Thank You

- World Bank & GFDRR
- UN Habitat

Elizabeth McNaughton – disaster leadership inspiration

Abby Van Muijen – riskscape illustrations

Marcy Monroe –brainstorming

Anna Konotchick – photos

Many others in Haiti and around the world