



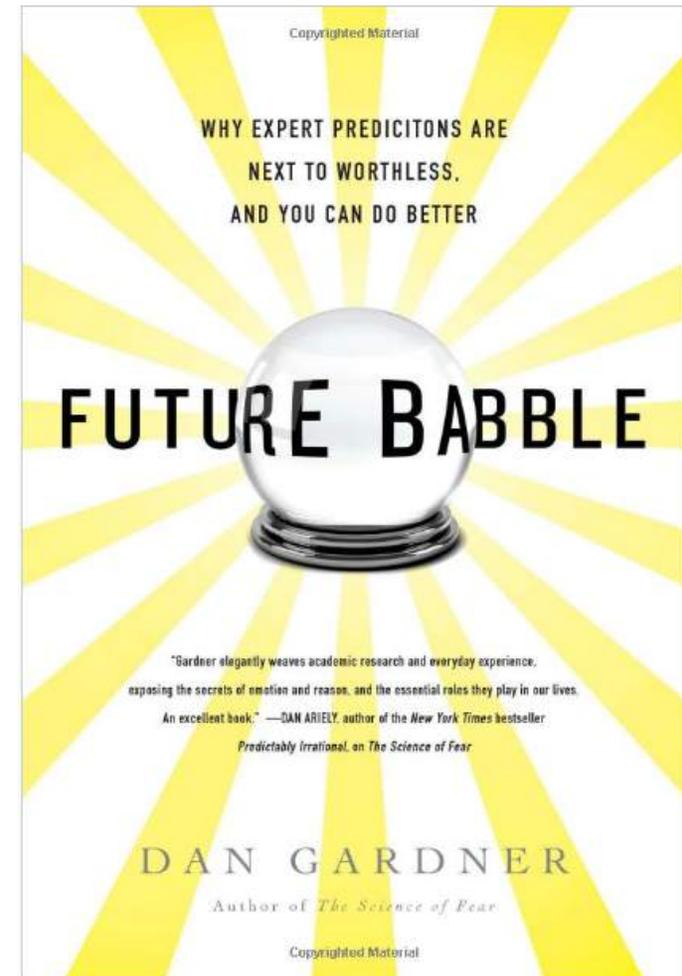
Think Scenarios

We Don't Forecast Well

- “4-piece groups, particularly guitars, are done!”
- “What use can we make of an electrical toy?”
- “Who the hell wants to hear actors talk?”
- 83% of M&As deliver no shareholder value
- “The odds of a meltdown are 1 in 10,000 years.”

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There are known knowns. These are things we know that we know. There are known unknowns. That is to say, there are things that we know we don't know. But there are also unknown unknowns. There are things we don't know we don't know.

Donald Rumsfeld

Known-Unknown or Unknown-Unknown?

4

**GLOBAL WARMING AT
HIROSHIMA ATOMIC BOMBS
PER SECOND**

GET THE WIDGET FOR BLOGS

UNDERSTAND THE SCIENCE

USE THE FACEBOOK APP

BT/annum

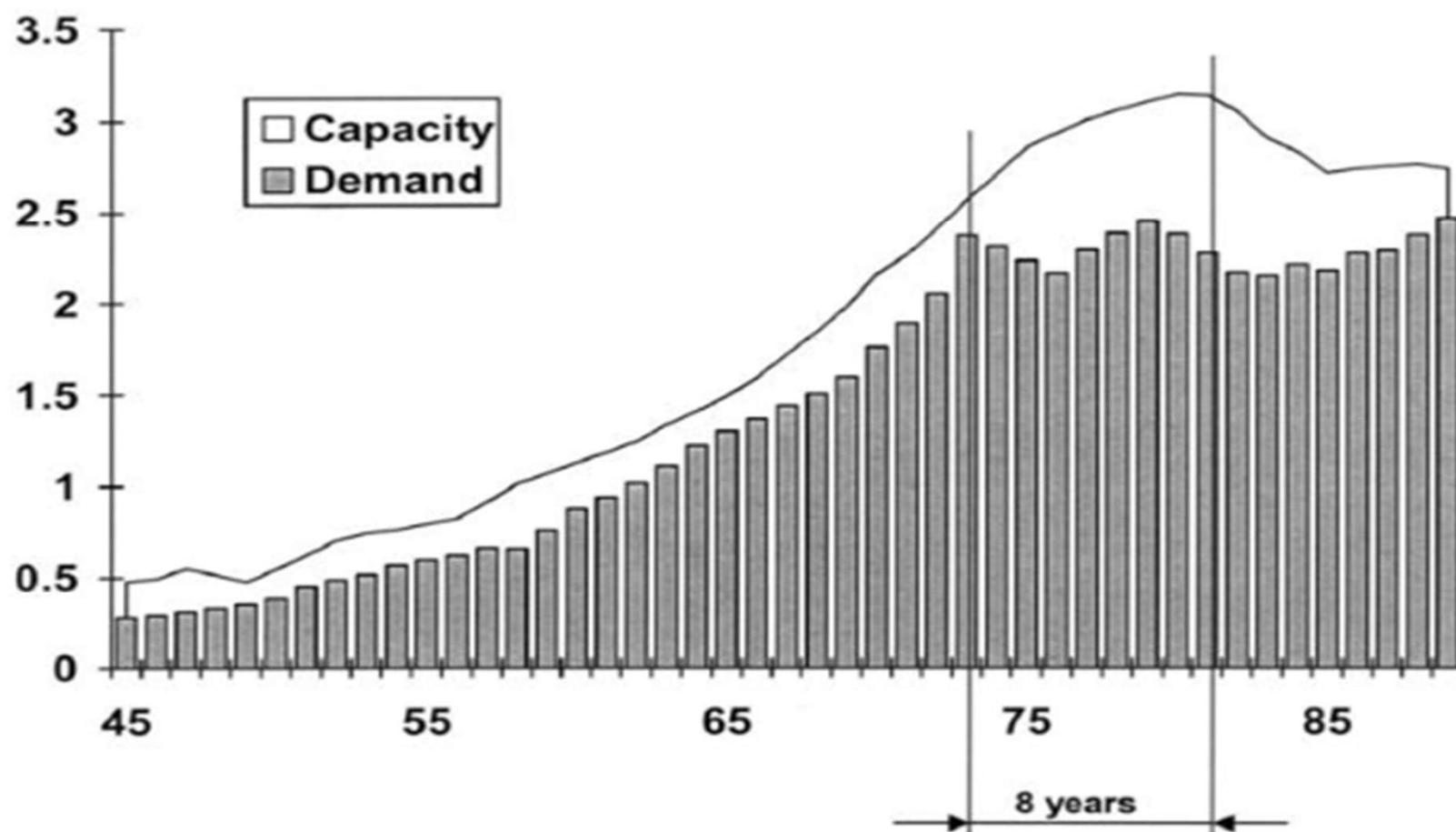


Figure 1. World oil demand and refining capacity (Source: BP Statistical Review)

The Scenarios Approach

Adam Kahane in *Transformative Scenario Planning* (2012): “*The scenario method asks people to talk not about what they predict will happen or what they believe should happen but only about what they think could happen.*”

The Value of Scenarios

If properly developed and institutionalized a set of scenarios can be the institutional "memories of the future" to help organizations perceive their environment. They are an efficient vehicle for making sense out of a large amount of data and information. Scenarios structure data about the future in multiple stories. The concept of using multiple storylines to encapsulate learning is powerful. . . "

From Scenario to Prediction?

- If Scenario A: 10%
 - If Scenario B: 70%
 - If Scenario C: 20%
-
- Do the math and you have the . . . future?
 - It's how electric utilities price CO₂ at \$9/ton
 - **But it defeats the whole point!**

Making Scenarios Most Useful

EFFECTIVE SCENARIOS

What sorts of stories are effective in an organisational setting to achieve this perceptual goal? Like any other storyteller the scenario planner needs to balance carefully the known and the novel:

- Effective scenarios should have enough hooks into the current organisational mental models to make them plausible to a “critical mass” in the organisation.
- But they should also contain an element of novelty and surprise in directions where the vision of the organisation needs to be stretched.

Haven't Scientists Spoken on SLR?

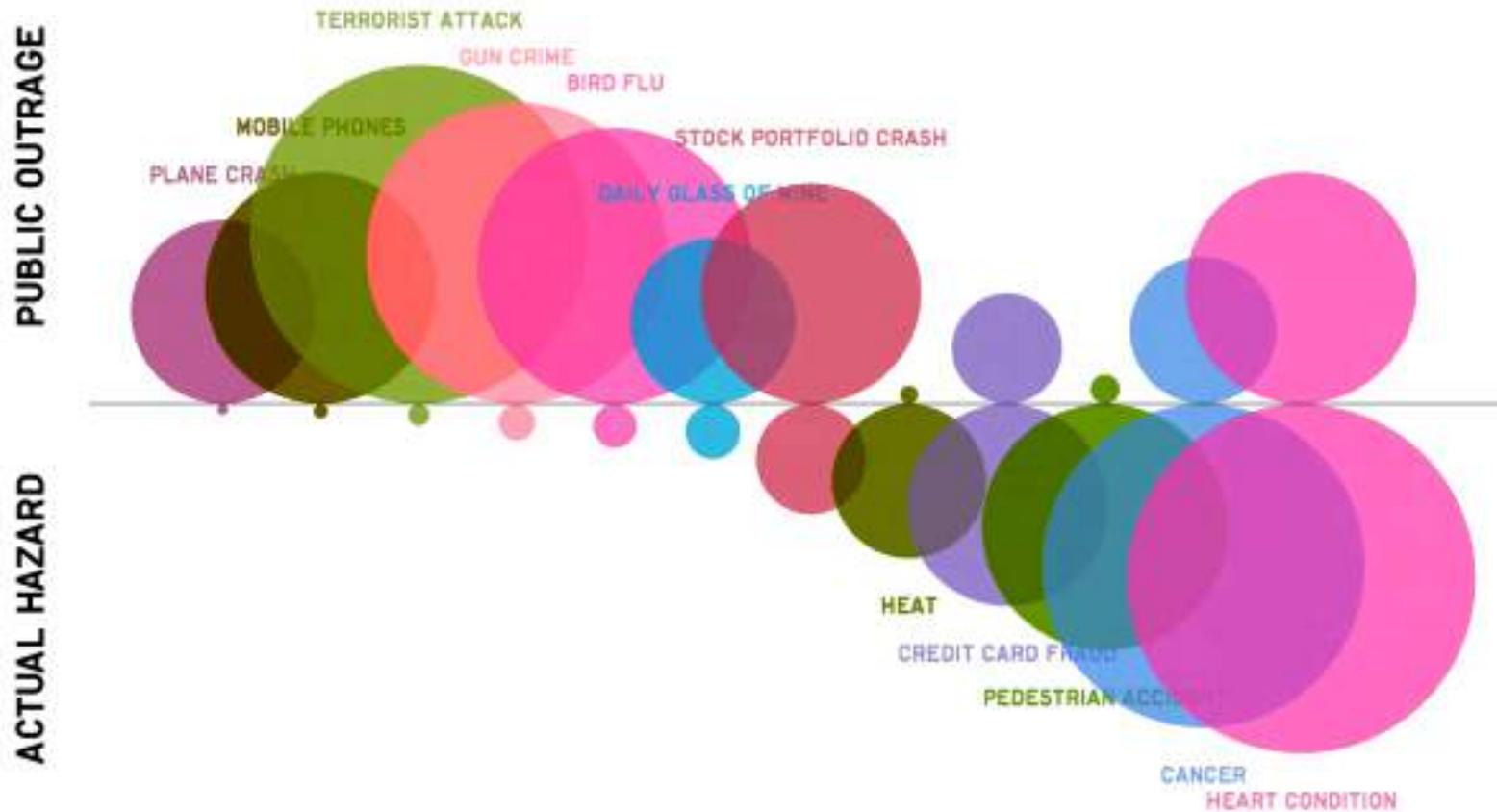
- The IPCC's Answer: 10-39 inches of SLR by 2100
- But What Was the Question?
 - Risk from whose perspective?
 - What part of the risk distribution?
 - Which uncertainties?
 - Known knowns? Yes
 - Known unknowns? Tried
 - Unknown unknowns? Probably not

Introducing Risk and Risk Lenses

Risk

Hazard x Exposure x Consequence

We're Usually Off About Risk



SLR Risk

Hazard x Exposure x Consequence

SLR

Assets

Interruptions

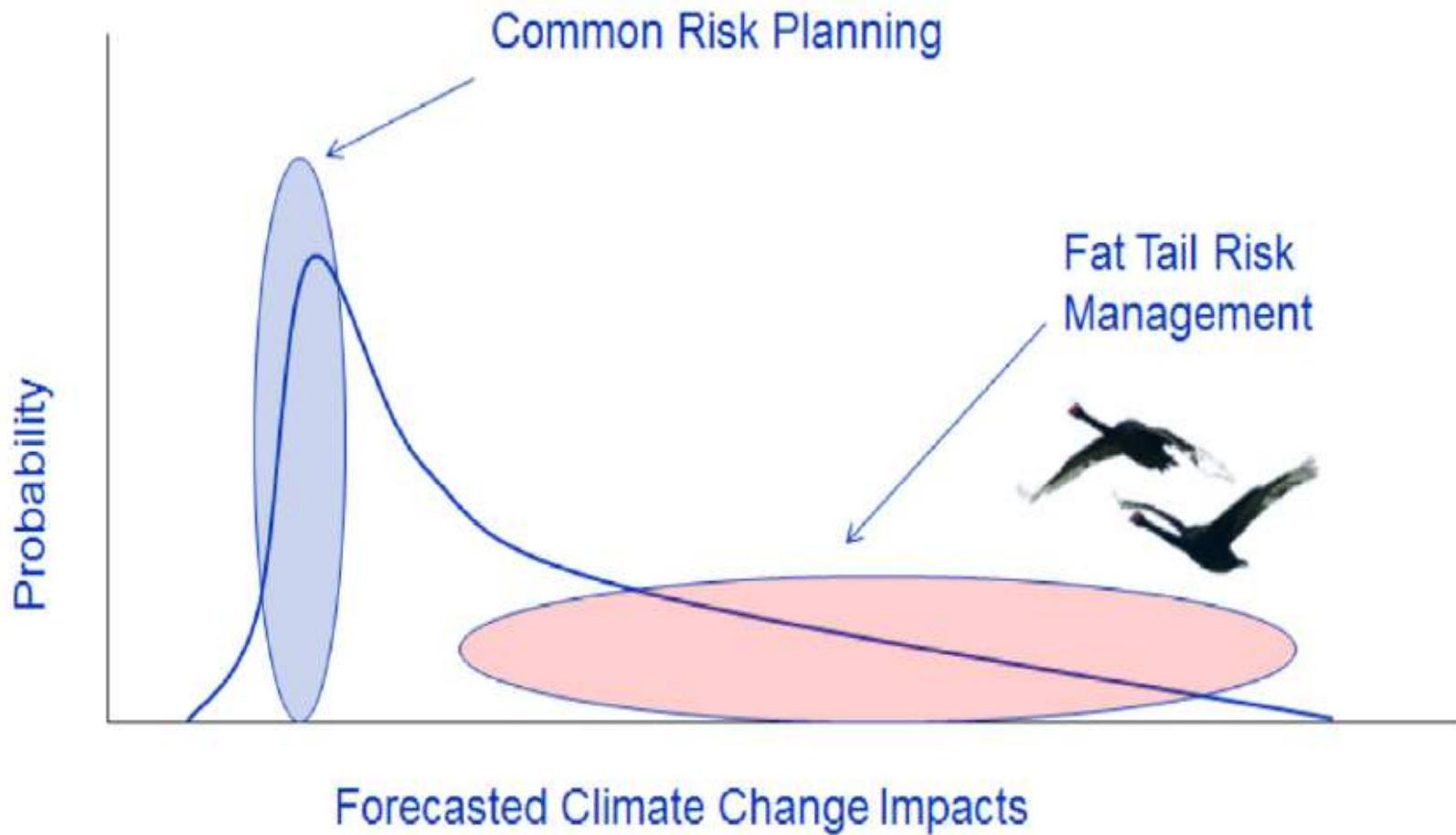
Operations

Lost Assets

Supply Chains

Deaths

FIGURE 5. Typical vs fat-tail climate risk planning.



Probability Matters

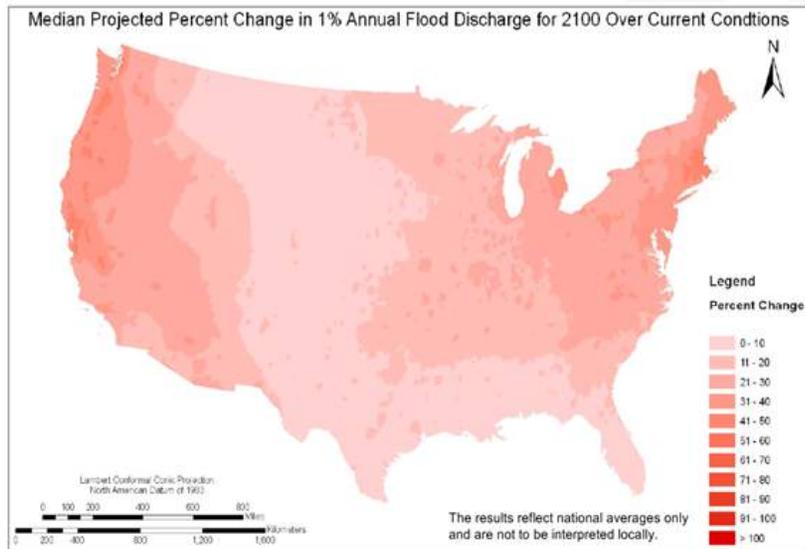
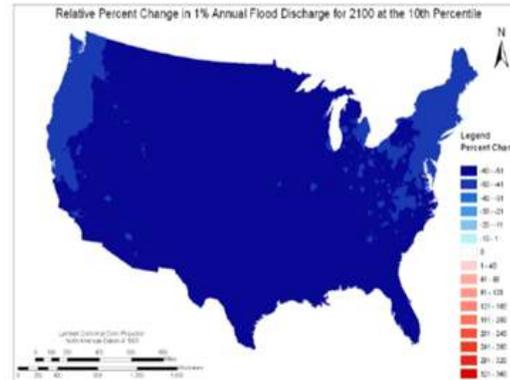
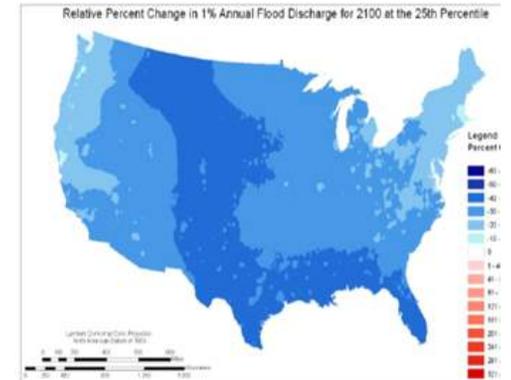


Figure 4-5. The median (50th percentile) relative change of the 1%-annual flood discharge at epoch 5 (2100). Changes are with respect to current conditions.



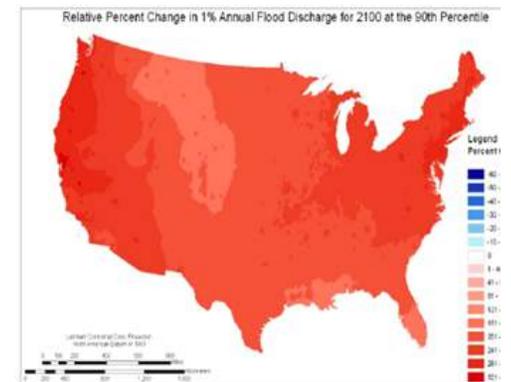
10th Percentile.



25th Percentile.



75th Percentile.



90th Percentile.

SLR Risk Mitigation

Hazard x Exposure x Consequence

Policy

Avoid

Resilient Structures

Reduce

Resilient Systems

Fortify

Insurance

Public (1) vs. Private (2) SLR Risk

Hazard x Exposure x Consequence

NC

(1) Unavoidable

(1) Taxes, mandates

(2) Avoidable

(2) Business failure

(1) Local

(2) Local to global

(1) Infrastructure

(2) Infrastructure, supply chains, markets

These are entirely different SLR risk profiles

Managing Risk

Not Rocket Science, But . . .

Risk Management as Cost-Benefit

- Step 1: Quantify your risks
- Step 2: Assess your risk management options
- Step 3: Calculate risk reduction MACCs
- Step 4: Decide on a risk reduction budget
- Step 5: Prioritize highest C/B ratio measures
- Step 6: Implement the selected measures

Risk Management in Face of Uncertainty

- Step 1: Assess your potential vulnerability
- Step 2: Forecast hazard(s) to relevant timescales
- Step 3: Revisit vulnerability given forecasts
- Step 4: Are conditions already changing?
- Step 5: Structure risk hypotheses
- Step 6: Respond as appropriate
- Step 7: Track and update periodically

BUT: Risk Management in Reality

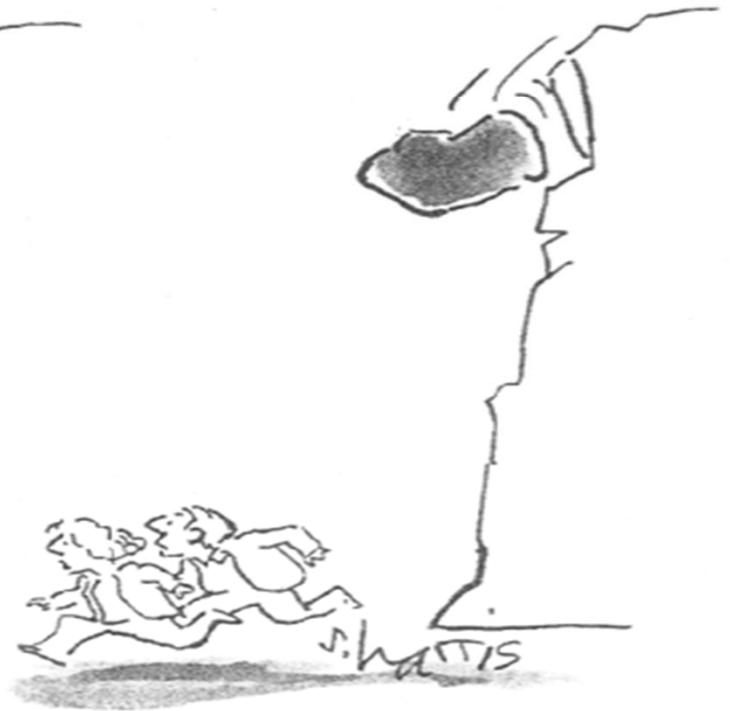
RISK PERCEPTION



RISK ASSESSMENT



RISK MANAGEMENT





The Lion Comes to Climate Risks

- Whether to Act:
 - Debating exactly what will happen in the future;
 - Debating exactly what is happening now;
 - Debating whether what's happening now is entirely attributable to climate change
- How to Act:
 - Focusing on direct impacts, local risks
 - Thinking short-term
 - Assuming we actually know what will happen in the future
 - Thinking of risk management as an engineering problem

Why We Ignore
the Obvious at Our Peril

Willful Blindness

MARGARET
HEFFERNAN

“But in failing to confront the greatest challenge of our age—climate change—all the forces of willful blindness come together, like synchronized swimmers in a spectacular water ballet.”

Figure 23: Example of Business and Operational Risks and their Domino Effects



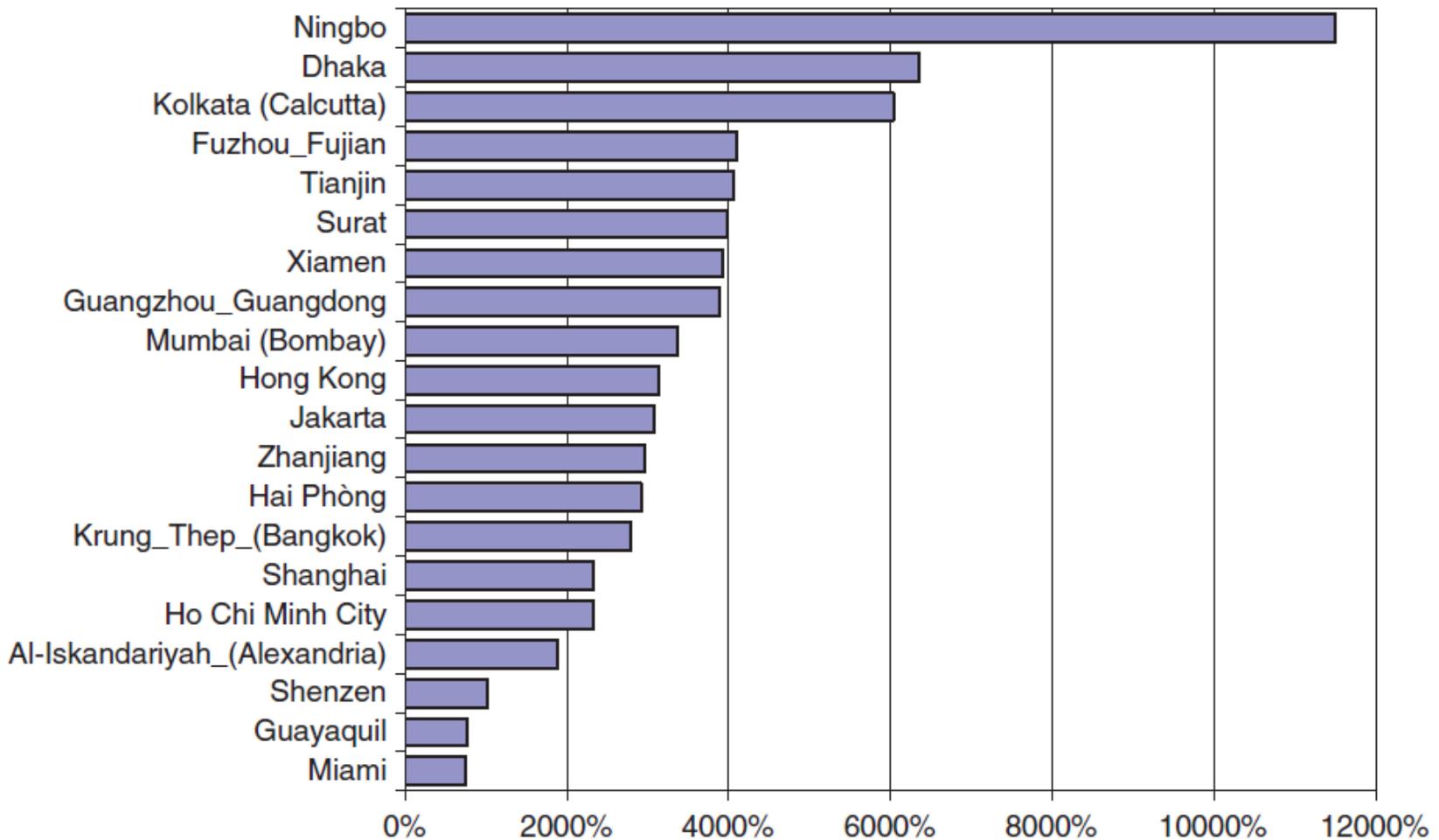


Fig. 9 Top 20 cities with the highest proportional increase in exposed assets by the 2070s under the FAC scenario relative to the current situation. Cities were selected from cities with the highest exposure in 2005

Sea Level Rise Threatens Oakland's Sewer System

Published: June 17th, 2014

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By Barbara Grady, *New America Media*

OAKLAND, CALIF. — The shoreline along Oakland is a checkerboard quilt of cement, steel and wetlands, with grassy estuaries sandwiched between walls of cement where old terminal buildings rise from the shore, steel pipes send effluent to the Bay and massive containership berths receive their payload.

Just inland from this quilt lies a broad north-south strip of railroad and highway.

Only after all that, nearly a mile from the shore, lie residential neighborhoods, block after block of shoebox size houses in an area known locally as the flatlands.

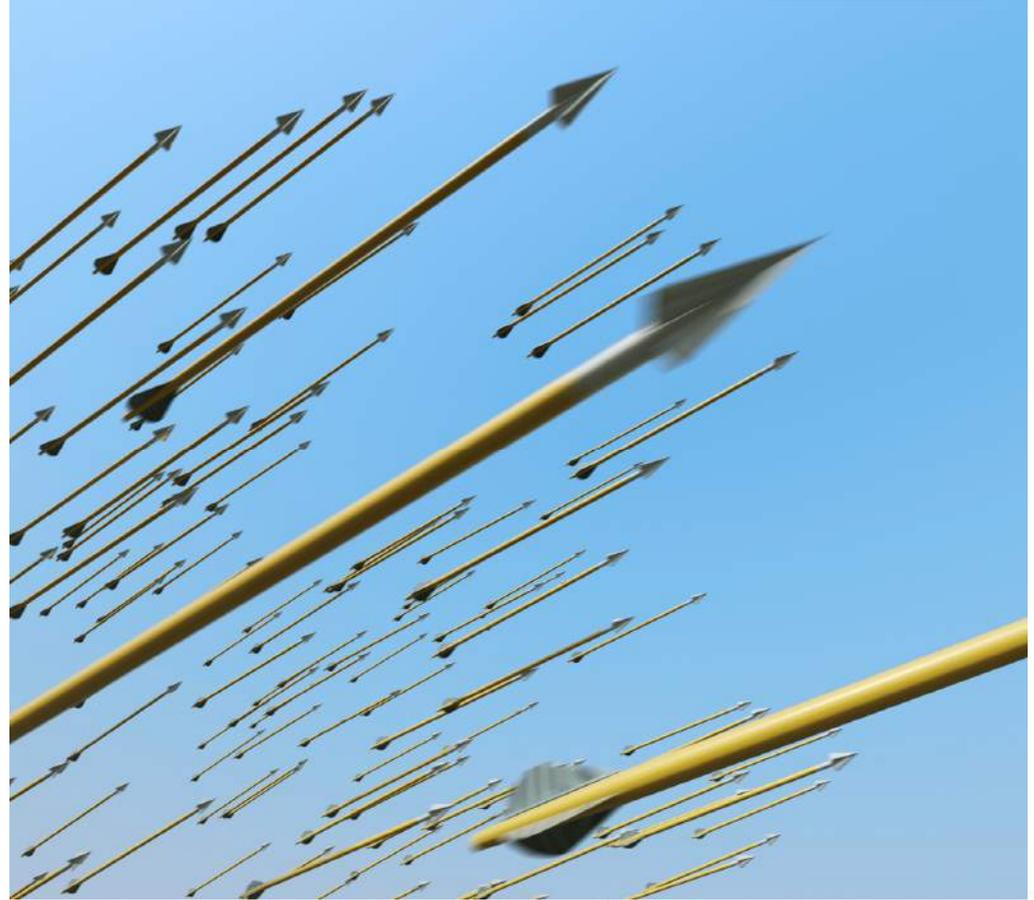


*Raw sewage warning sign, Oakland, Calif.
Credit: Daniel Ramirez/flickr*

Their distance from the shoreline leads many residents here into thinking of sea level rise as a remote issue not likely to affect them, based on random interviews when a question about flooding caused people to laugh or raise an

Managing SLR Risk

- No “right” answer
 - Different risks
 - Different RM options
 - Different decisions
- Think scenarios!
 - (customized)
- Think cloud risk
 - (not event risk)



GREETINGS PROFESSOR FALKEN

HELLO

A STRANGE GAME.
THE ONLY WINNING MOVE IS
NOT TO PLAY.



@climateroulette