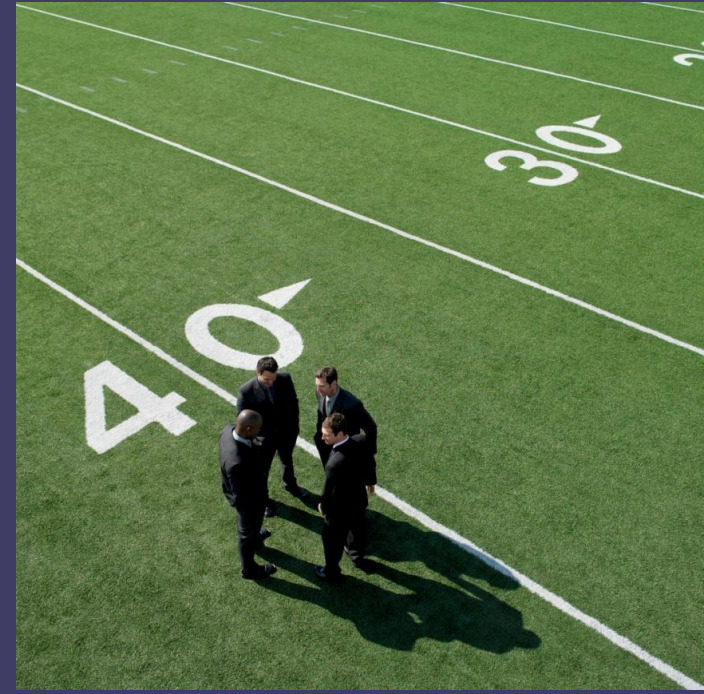


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**EXTREME EVENTS, CONSEQUENCES,
AND (MAYBE) DISASTER RECOVERY:
*HELPING YOUR COMMUNITY SURVIVE
AN EXTREME EVENT***

THE PLAN

- I'm to tell you about how extreme events turn into disasters
- About how to improve your community's chances for long-term recovery.
- And, then, begin a discussion about how you can reduce recovery problems by starting now.



The kinds of extreme events we are talking about:

- Natural hazard events
- Willful and mindless acts of destruction
- Seriously adverse biological and ecological events
- Large accidents
- And economic devastation to a community or a region



- A disaster is what happens when a **community** and an **extreme event collide**, resulting in extraordinarily **adverse consequences** for us and for that which is important to us.

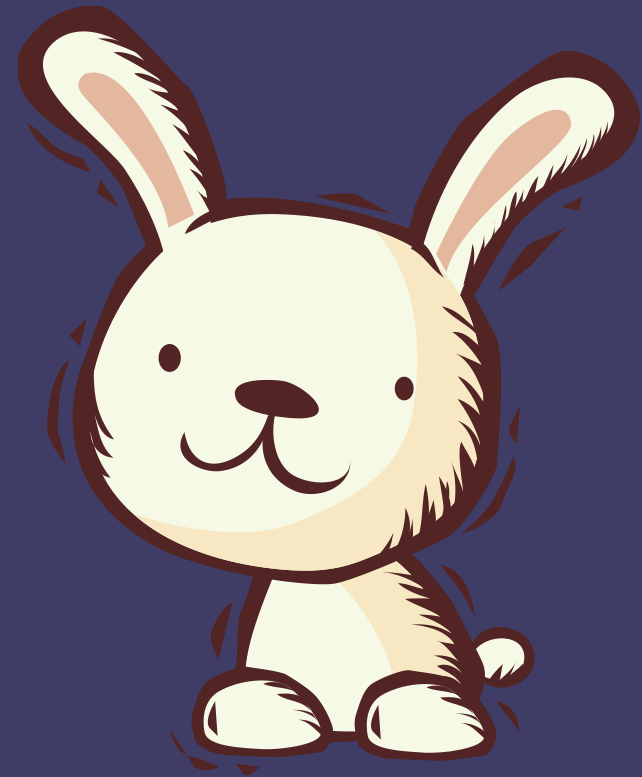
Thinking about a community in the abstract helps us understand how disasters happen.

- Communities are not composed of buildings and structures.
- Those things are just part of the community
- Communities consist of people and organizations doing things in and around a built environment

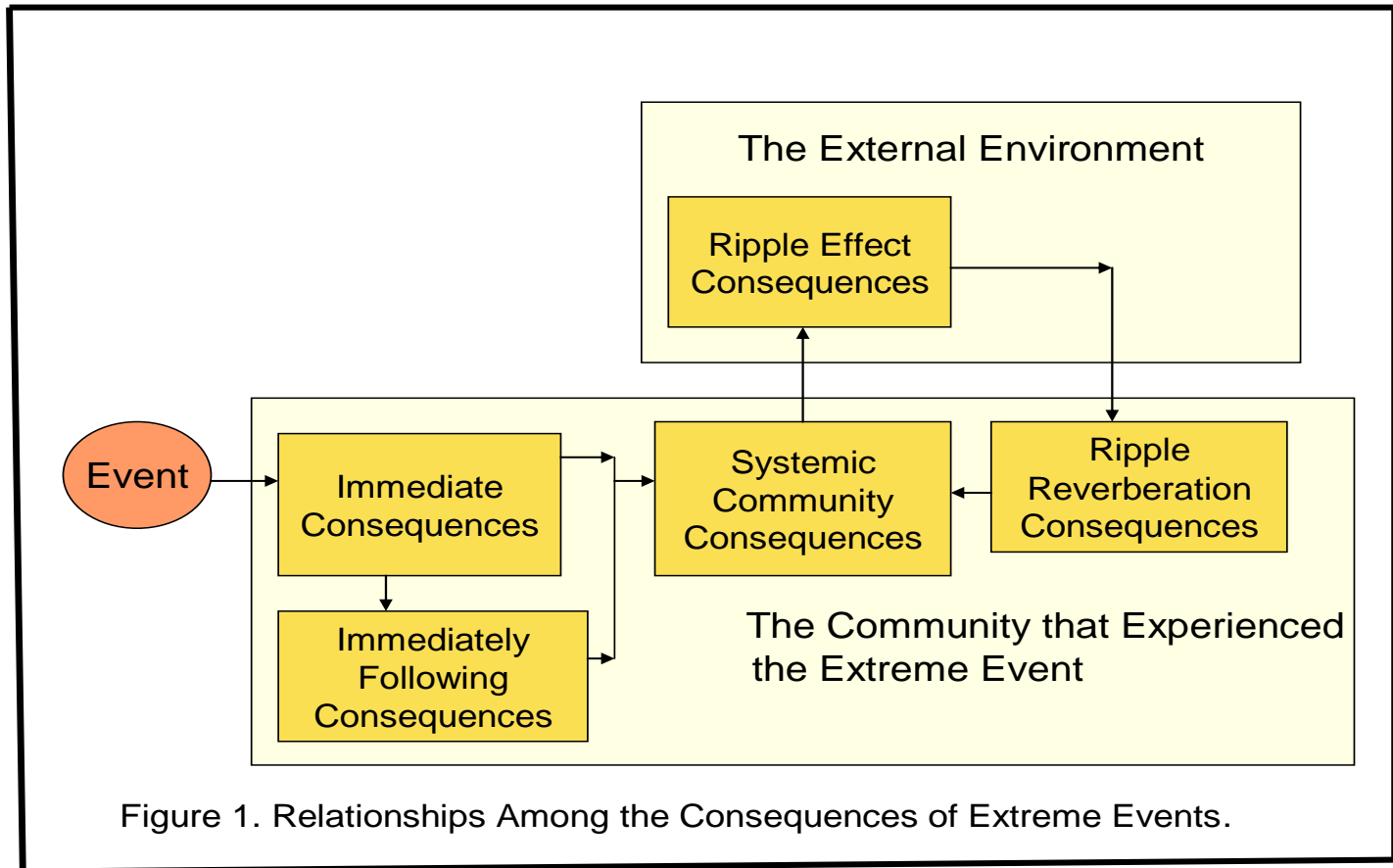
- Communities develop and change as individuals and organizations choose
 - what to do
 - where to do it
 - how to do it
 - when to do it
- People make these choices in response to cues, prices, constraints and opportunities.

Communities are complex, self-organizing systems

- Comprising many elements
- The elements have patterned, complex interrelationships
- Often, they are tightly coupled
- Damage to one element or one relationship it affects most of the others
- The bunny illustration?



Here's what happens when an extreme event occurs.



The adverse consequences do not happen all at once.

- They are usually progressive. They cascade and unfold through the community through time.
- Some are generally predictable, but many come as surprises.
- Chance events with unpredictable outcomes.
- Unpredictable outcomes of recovery efforts.
- Where's the Aspirin?

I'm not making this up

- My colleagues and I have studied more than two dozen communities that experienced a disaster.
- We tracked what happened in each of them year after year.
- We organized what we learned through time and across communities.
- Here it is in summary form.

Some communities are hit harder than others



- The event itself
 - Magnitude
 - Intensity
 - Duration
 - Proximity
- The pre-event community
 - Exposed
 - Vulnerable
 - » Structurally
 - » Economically
 - » Socially

Some communities recover quickly

- **But not many.**
- They are the fortunate few that are disaster resistant and resilient
 - Resistant to the immediate consequences of the event
 - Strong communities
 - Strong economic drivers and a set of powerful reasons to exist

For those that suffer systemic damage, recovery is a long, ugly road

- Rapidly increasing government costs coupled with falling revenues
- Heavy work overloads for local government
- Serious economic problems
- Serious housing problems
- Rapid land use changes
- Big-time demographic changes

- Social discontinuities and disconnects
- Lingering mental health issues
- Massive losses not covered by insurance
- No clear path what to do or how to do it
- We know how to rebuild structures and utilities, but we are not very good at rebuilding economies or communities.

This is Take Away #1:

***REBUILDING AND REPAIRING
STRUCTURES IS NECESSARY BUT NOT
SUFFICIENT FOR RECOVERY.***

So, this is the ugly reality . . .

- There is no timetable for community recovery.
- There is no formula for community recovery.
- Recovery is always more complex than it first appears.
- Recovery is never automatic.
- Recovery is never guaranteed.



How can we improve our chances for long-term community recovery in the aftermath of disaster?

- Once the disaster occurs, it isn't simple and it isn't easy
- Five things to keep in mind



1. Put your government house in order

- Staffing
- Filling the revenue gap
- Communicating
- Reducing unnecessary bureaucracy
- Learning about assistance programs
- Creating a high level problem-solving team

2. Create a basic strategy

- Systems thinking
- Think strategically
- Make it realistic
- Buy into the unpredictability of outcomes
 - use policies as guides to action
 - No lock step plans except for individual projects
- Keep in mind incompleteness of design
 - Try to get the community on an good trajectory

3. Communicate

- Use communication to learn what elements of the community need
 - Don't decide what they need by yourself in your office
- Use communication to send cues, signals, incentives
 - Help community members make appropriate choices about what to do, where to do it, how to do it, and when to do it.

4. Help with the healing

- Help families and friends reunite
- There will be long-term mental health issues
- Remember the children: most will have a hard time dealing with what happened.
- Help people with catharsis
 - Hold symbolic events.
 - Don't ignore what happened

5. Keep the pitfalls in mind

- Thinking the disaster is just “a bump in the road” and that “things will get back to normal soon.”
- The feel-good period is short-lived.
- Confusing municipal recovery with community recovery.
- Assuming everyone has the same recovery goals.

- Not having a serious strategy for getting from here to there.
- Not allowing for unanticipated and uncontrollable events.
- Assuming it will work here because it worked there.
- Forgetting about path dependency.
- Assuming that because you thought it up it is bound to work.

All of this and more is available.

- Last year, my colleagues and I wrote *“Managing for Long-Term Community Recovery in the Aftermath of Disaster”*.
- *We don’t get any royalties. All proceeds go to the Public Entity Risk Institute.*
- *It’s available at www.riskinstitute.org or on Amazon.*

This is Take Away #2:

***EXTREME EVENTS ARE INEVITABLE.
DISASTERS ARE NOT.***

This is Take Away #3

**BY FAR THE BEST AND LEAST EXPENSIVE
WAY TO RECOVER FROM A DISASTER IS
NOT TO HAVE ONE.**

THIS IS ROCKET SCIENCE

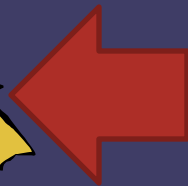
PAY CLOSE ATTENTION!

The lessons are clear

- **Reducing initial damage can significantly reduce systemic damage to the community system.**
- And greatly ease the recovery process.
- But that requires creating a community that is disaster resistant.
- It can be done for a lot less effort and money than you might think.

How does a community become disaster resistant?

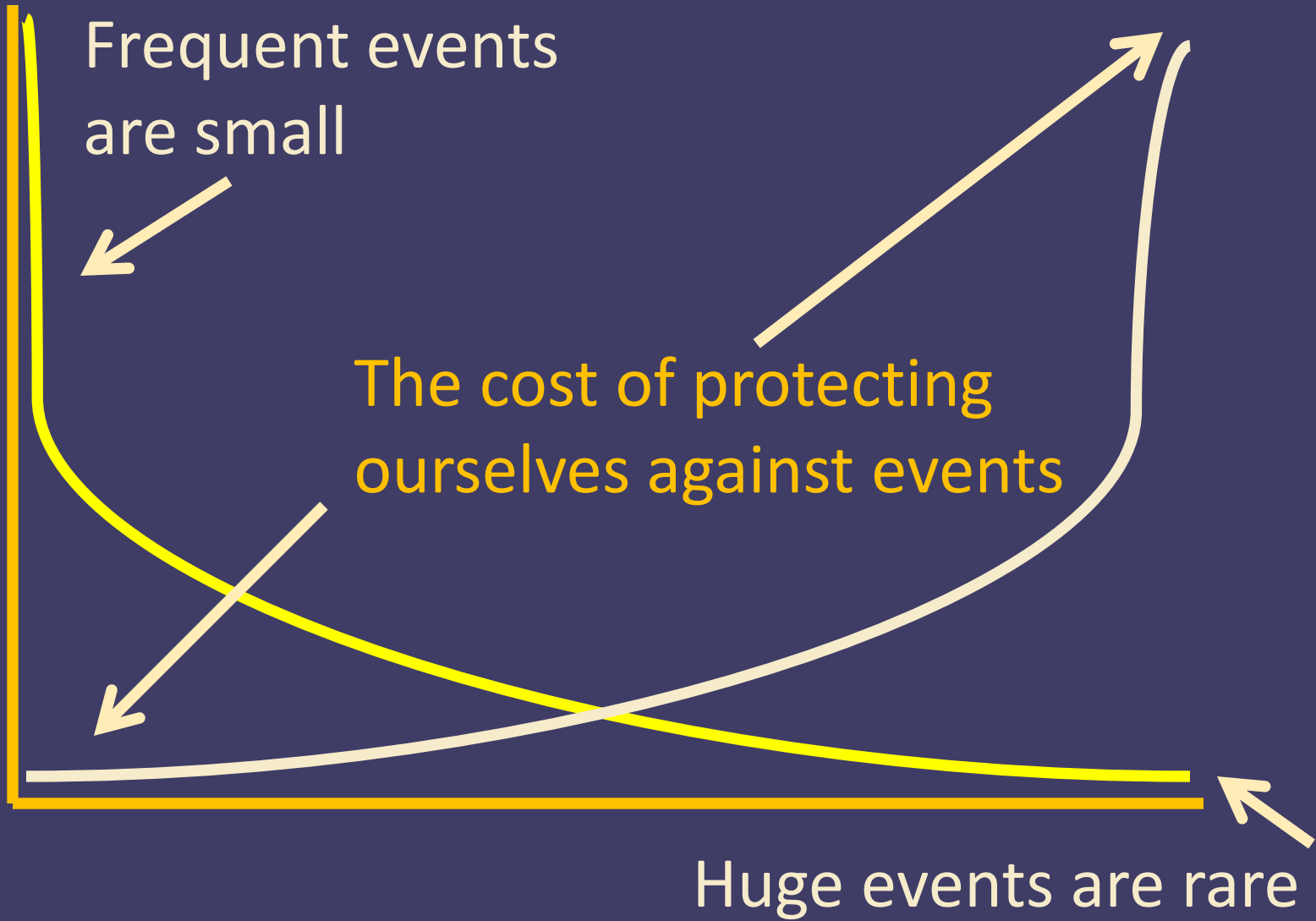
- Reduce the number and severity of events
- Reduce exposure and vulnerability
- Work on becoming resilient



Not this piggy

This piggy





Your community can become disaster resistant and resilient, but

- It's like getting in shape or losing weight.
 - It doesn't happen in one day.
 - It's best to start today.
 - It demands commitment over a long time
- It has to be affordable
 - Benefit-cost doesn't matter if you don't have the cash
 - It has to be done incrementally, steadily, and persistently
 - Start with low-hanging fruit
- Here are some things to do *before the next event*

Things to do **before** the next extreme event.

1. **REDUCE EXPOSURE TO EXTREME EVENTS.**

- Identify and Assess the Risks
- Ensure that Consumers are Aware of Hazards
- Control development in areas subject to recurring disaster.
 - Raise the “costs” of being there and lower the costs of being in safer places.



- Use natural protection where possible
 - Firebreaks on the urban-rural fringe
 - Wetlands, agriculture, parks in flood-prone areas
- I don't have lots of confidence in “controlling” nature
 - Two kinds of levees and dams
 - Those that have failed and those that are going to.

2. REDUCE VULNERABILITY TO EXTREME EVENTS

- Adopt and implement quality building codes that include resistance to hazards.
- Establish requirements for building resilient and resistant infrastructure.
- Inspect and maintain critical structures and lifelines.
- Partner with private organizations to help reduce vulnerability.

- A few illustrations that don't cost much extra
 - Put generators above the 500 year flood plain
 - Design freeways as secondary levees and firebreaks
 - Put public buildings in safe places
 - Design distributed network infrastructure rather than hub and spoke
- We have to build in resistance when we build new or when we make major repairs or improvements.

- Get the states to review critical facility designs with exposure and vulnerability issues in mind.
- Provide technical assistance and incentives to help smaller governments and private organizations enhance resistance and resilience.

- Facilitate community building
 - Partner with not for profit service providers and community building organizations
- Facilitate development of a strong and diverse economy
 - Partner with local employers to build a stronger economy

3. CREATE AND MAINTAIN CAPABLE, EFFECTIVE EMERGENCY RESPONSE SYSTEMS

- Define emergency response protocols and procedures among state agencies, local governments, and nongovernmental organizations.
- Establish effective inter-agency and intergovernmental communication systems and procedures.
- Ensure that both states and local governments have highly competent emergency response teams.
- Inform citizen first responders about what to do and how to do it.
- Facilitate access to disaster sites for those who need to be there.

4. ESTABLISH SYSTEMS TO PROTECT PEOPLE IN HARM'S WAY

- Ensure warning systems are in place and working.
- Educate residents and visitors on how and when to protect themselves.
- Create workable plans to ensure that people evacuate from harm's way.
- Devise plans to care for survivors and evacuees.

5. ENSURE THE AVAILABILITY OF ADEQUATE PROPERTY AND CASUALTY INSURANCE

- Ensure the availability of property and casualty insurance coverage from viable insurers operating in the state.
- This is probably a state role, but local governments, working together, can pressure the states.
- Individuals, public and private organizations, *and local governments* should be insured.

6. DEVELOP DISASTER RECOVERY PLANS IN CONCERT WITH OTHER LOCAL GOVERNMENTS, THE PRIVATE SECTOR, AND THE STATE

- Plan now who will do what and how they will do it in response to an extreme event.
- Plan to work with adjoining local governments, the private sector, and the state to devise regional recovery strategies after the disaster.

7. PROVIDE FOR THE CONTINUITY OF LOCAL GOVERNMENT OPERATIONS FOLLOWING A DISASTER

- Take action now to ensure information security and survival.
- Create mutual support agreements to provide staff and technical assistance after the event.
- Create statutes to ensure an orderly flow of revenue to damaged and depopulated communities during recovery.

8. PLAN HOW TO REPAIR OR REBUILD INFRASTRUCTURE IN THE COMMUNITY AND TO ACCELERATE PROGRAMMED PROJECT IN THE AFFECTED AREAS

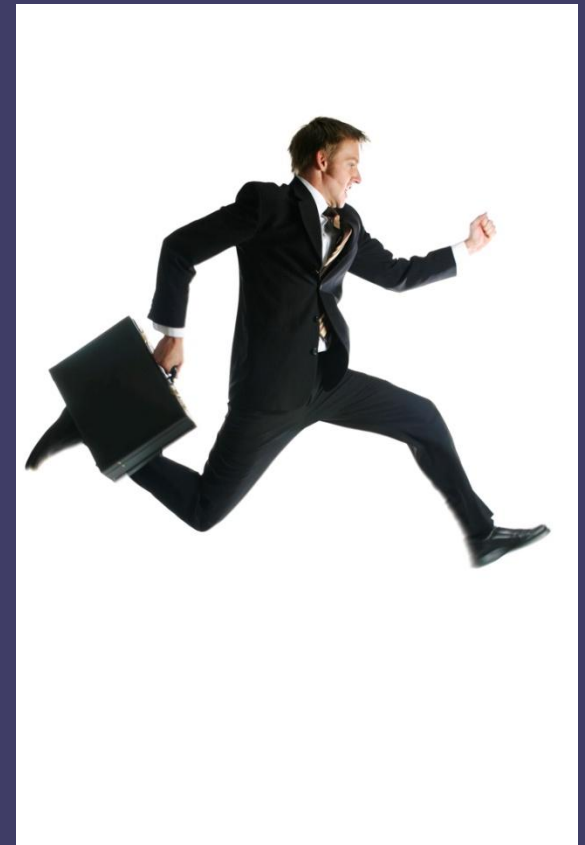
- Create, in advance, access to sufficient capital for local government and businesses to quickly rebuild damaged facilities and infrastructure.
- Work out mechanisms for speedy contracting to build, repair, or replace needed facilities and infrastructure.

9. DEVISE MEANS NOW TO EXPEDITE PERMITTING AND LICENSING

- Devise means for quickly permitting and inspecting businesses that are needed now.
- Devise means to quickly license contractors and specialty tradesmen in the wake of disaster.

THIS IS TAKE AWAY #4

- *START TODAY!*
- *Initiate a Risk Assessment*
- *Set priorities*
- *Assign responsibilities*
- *Establish accountability*



TAKE AWAY #4

- No matter how hard you rake, you can't get every leaf.
- You cannot protect your community against every extreme event.
- The really rare ones are simply too big, too close, and too intense.
- For those, community recovery strategies are essential.

Thank you so much for your kind attention.

ALAS, WE'RE OUT OF TIME

