

Rocky Mountain Land Use Institute

Western Places/Western Spaces: Building Fair & Resilient Communities

Beyond Brochures: Policies and Regulations that Mitigate Hazards

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NHMA
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Howdy!



**Ed Thomas, President
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NHMA

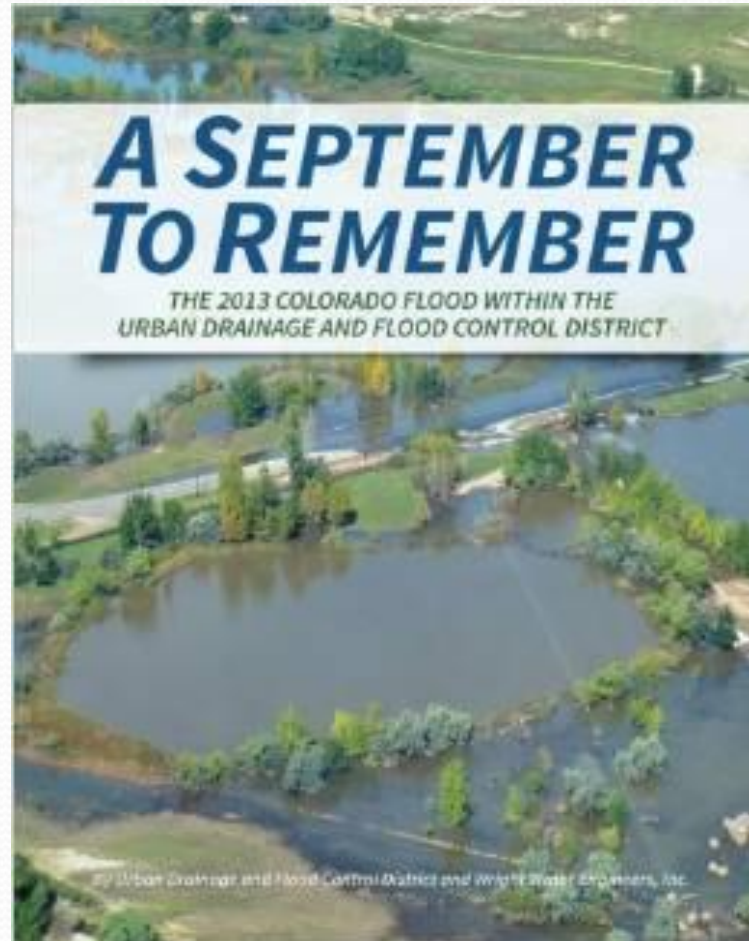
Natural Hazard Mitigation Association

This presentation is not and cannot be technical engineering or legal advice, nor does this portion necessarily represent the views of anyone other the presenter.

Approaching Our Problems Together

- As we think in a systems analysis manner to solve our serious problems we must including sea level rise and climate variability, uncertainty and climate change.
- **We must stop making things worse!**
- We need to work with many persons and groups to solve our serious disaster, water resources, and other related issues.
- Right now we have a system which rewards dangerous behavior.
- Yet, some places—like Tulsa, Oklahoma; Metropolitan Denver, through the work of the UDFCD; Charlotte- Mecklenburg County, North Carolina and others—are heroically overcoming obstacles and reducing losses.
- First some thoughts on disasters, Flood Insurance, and opportunities for change

Report on the 2013 Colorado Floods



Really excellent analysis which clearly shows the advantages of the thoughtful, collaborative, systematic approach and of the UDFCD over the past 40+ years

Three Major Situations We See When Dealing With Development Issues in Hazardous Locations

- a) undeveloped property, which gives us the best chance to get things right;
- b) existing development which gives us challenging, but possible opportunities for preparedness, retrofitting, etc. to reduce the risks and consequences of natural events;
- c) redevelopment of property following a disaster using the "Patchwork Quilt" of available processes and programs.

Trends in Damages Following Natural Events

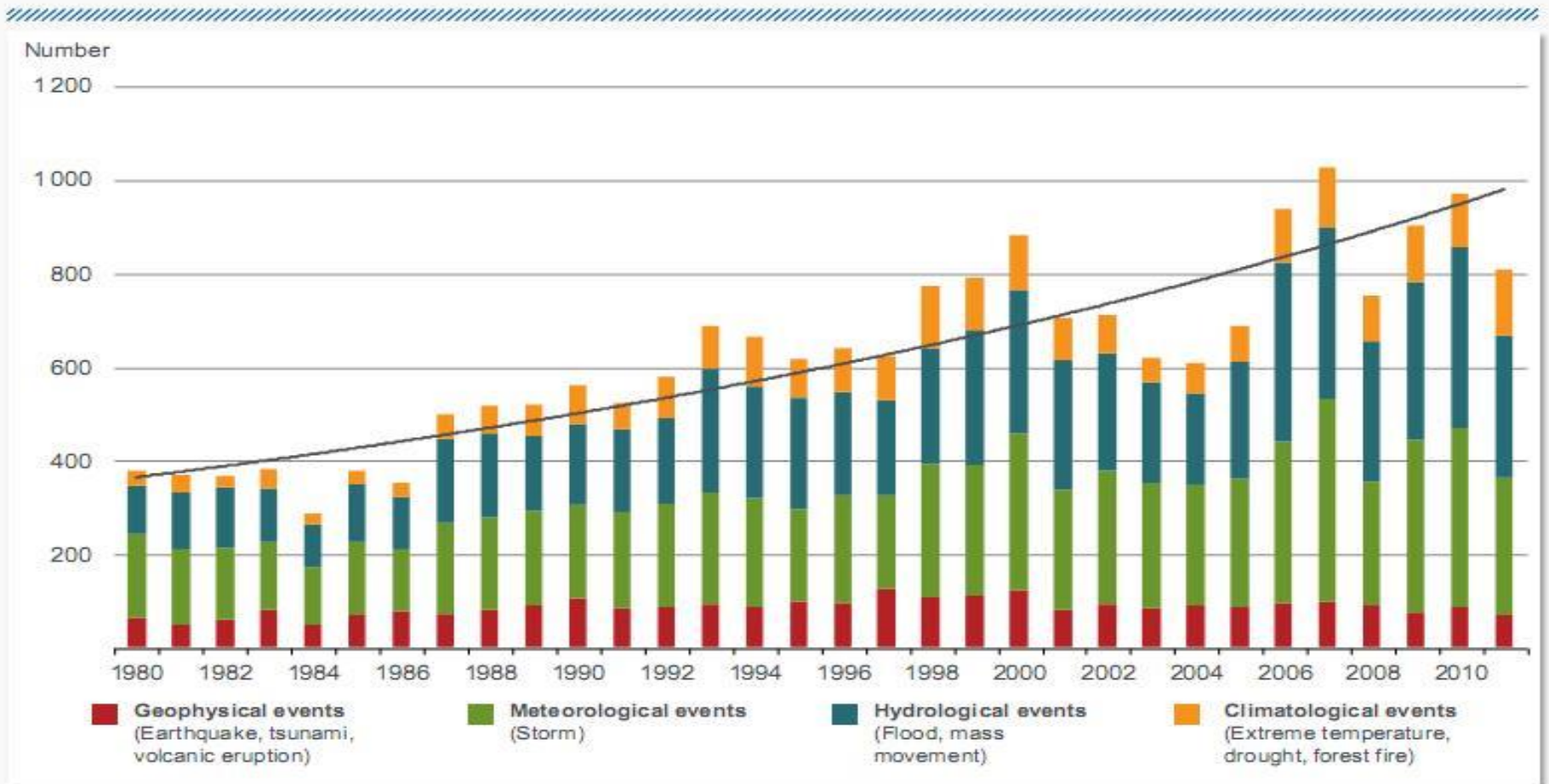
- **Dramatic Increases in Flood and Wind Disasters**

NatCatSERVICE

Natural catastrophes worldwide 1980 – 2011

Number of events with trend

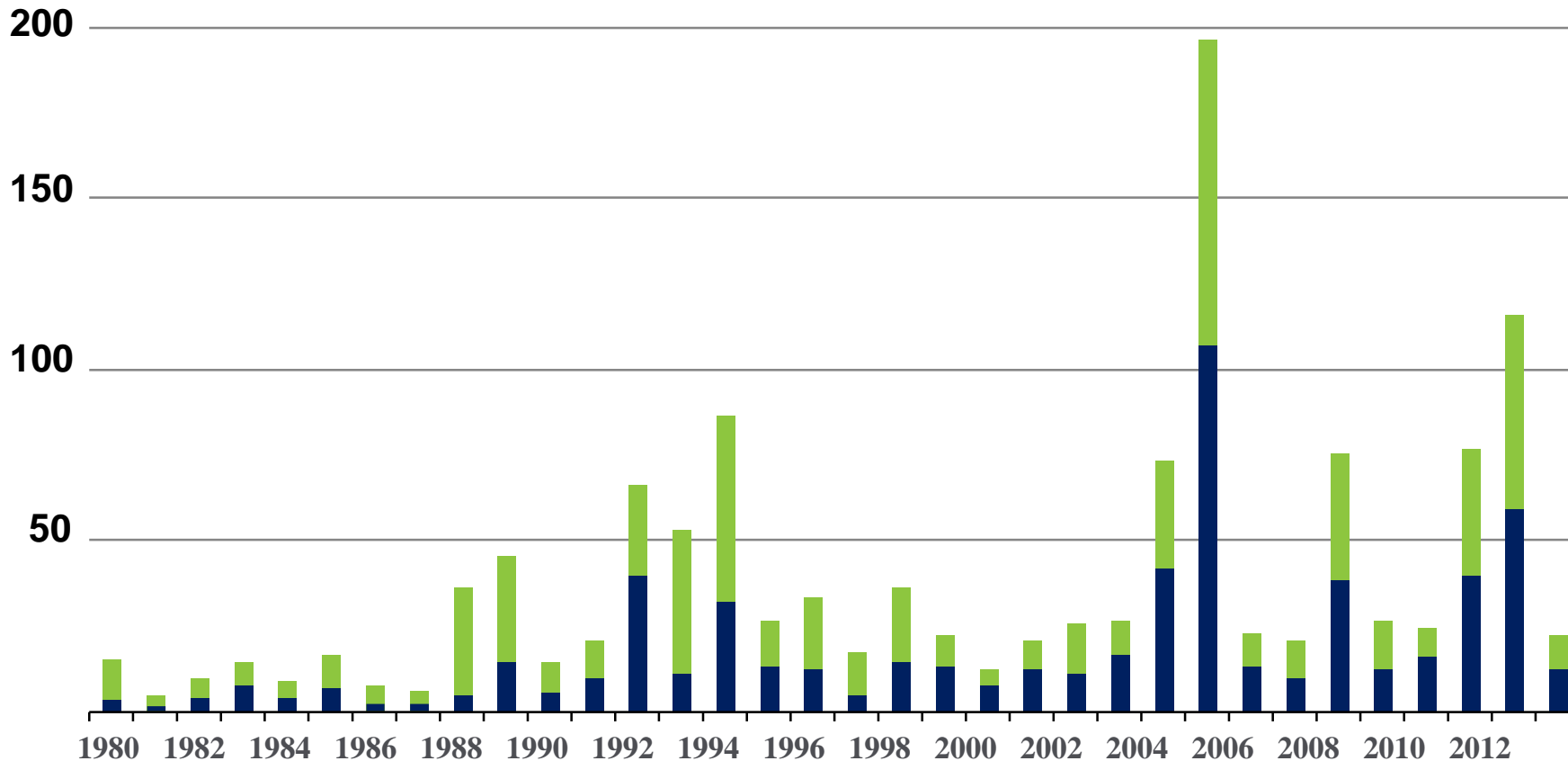
Munich RE 



Overall and Insurance Losses in the US

1980 – 2013, US \$ billions

US\$ bn



Source: Munich Re. Losses adjusted to inflation based on country CPI.



Overall losses
(in 2013 values)*



Insured losses
(in 2013 values)*

Flood losses increasing?

- This was not supposed to happen!
- The Flood Insurance Program was designed to reduce such losses.
- In 1976 a HUD sponsored economic analysis predicted that by the year 2000 or 2025 flood losses would begin to decline.
- I believe that the NFIP is the most cost effective program of Hazard Mitigation in the history of the Nation.
- Colorado has been a National Leader in reducing flood losses.
- Can the NFIP be improved?
- Is it now being improved?
- What happened?
- What can we do?

Disaster Risk Reduction and Flood Insurance

- FEMA has programs to help owners reduce their risk and save money on flood insurance
 - Community-wide discounts through the Community Rating System (CRS)
 - FEMA grant programs support rebuilding and relocating
 - Use of higher deductibles to lower premium costs

The smartest way to save is to build higher!

Well, unless you have steep slopes as described in Brian Varella's brilliant webinar for the Natural Floodplain Functions Alliance (NFFA):

<http://www.aswm.org/-nffa/1790-webinars>

Excellent Webinar on Floodplain Management, Wildfires & Development in Mountain Areas

- Preventing Flood Disasters from Becoming Disastrous – Brian Varrella, Chair, Colorado Association of Stormwater and Floodplain Managers
- Located at:
- <http://www.aswm.org/-nffa/1790-webinars>



Brian Varrella, Colorado Association of Stormwater and Floodplain Managers

FLOOD RISK MANAGEMENT

Buying Down Risk

Initial Risk

Insurance

Building Codes

Zoning

Levee

Contingency/Response Plans

Outreach

Residual Risk

**Risk Reduction Actions
(Cumulative)**

USACE Slide
Courtesy of Pete Rabbon

All stakeholders contribute to reducing risk

Initial Risk

Risk Increase Factors

No or Inadequate Warning/Evacuation Plan

**Sea Level Rise and Upstream Development
Increases Flood Heights**

**Lack of Awareness of Flood Hazard, Absence of
Flood, Business Interruption, and DIC Insurance**

**Critical Facilities Not Properly Protected
From Flooding**

**Increased Development: more people
and more costly development**

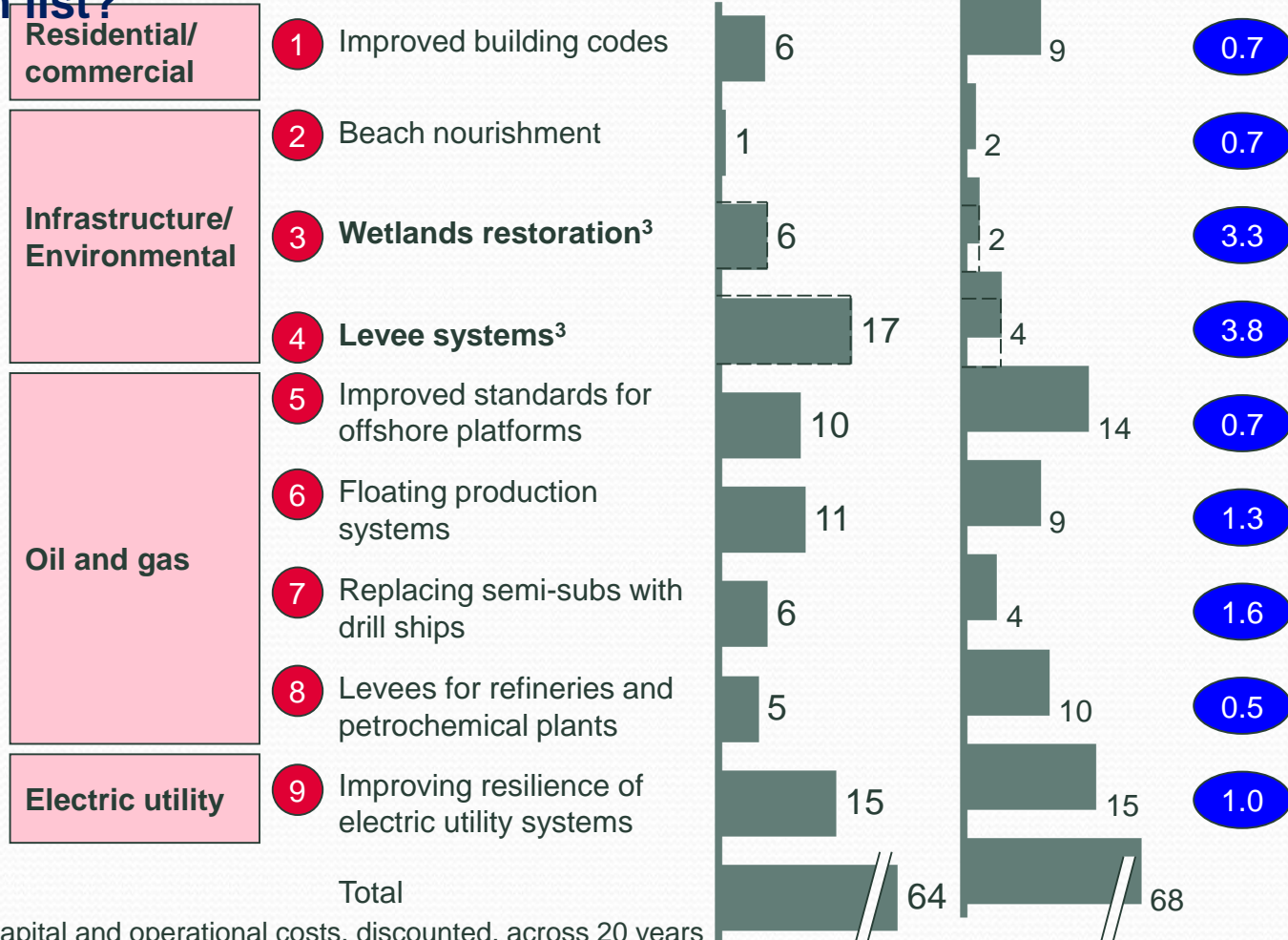
**Buildings & Infrastructure Not
Properly Designed or Maintained**

Vastly Increased Residual Risk

RISK

Let's Take a Few Minutes to Discuss Efficient Resilience Options

But, what form of mitigation/adaptation is missing from list?



x Average C/B ratio

¹ Total capital and operational costs, discounted, across 20 years

² Total loss averted, discounted, across 20 years

³ Included despite high C/B ratios due to strong co-benefits, risk aversion

Many thanks to Cynthia McHale of CERES for this information

How Can We Accomplish Disaster Risk Reduction

- Many folks tell me that there are insufficient funds for Hazard Mitigation/Climate Adaptation/Disaster Risk Reduction
- Do you at least sort of agree with the old saying that **“Well Begun is Half Done?”**
- If so, is “Half-Done” very, very “Well Begun”?

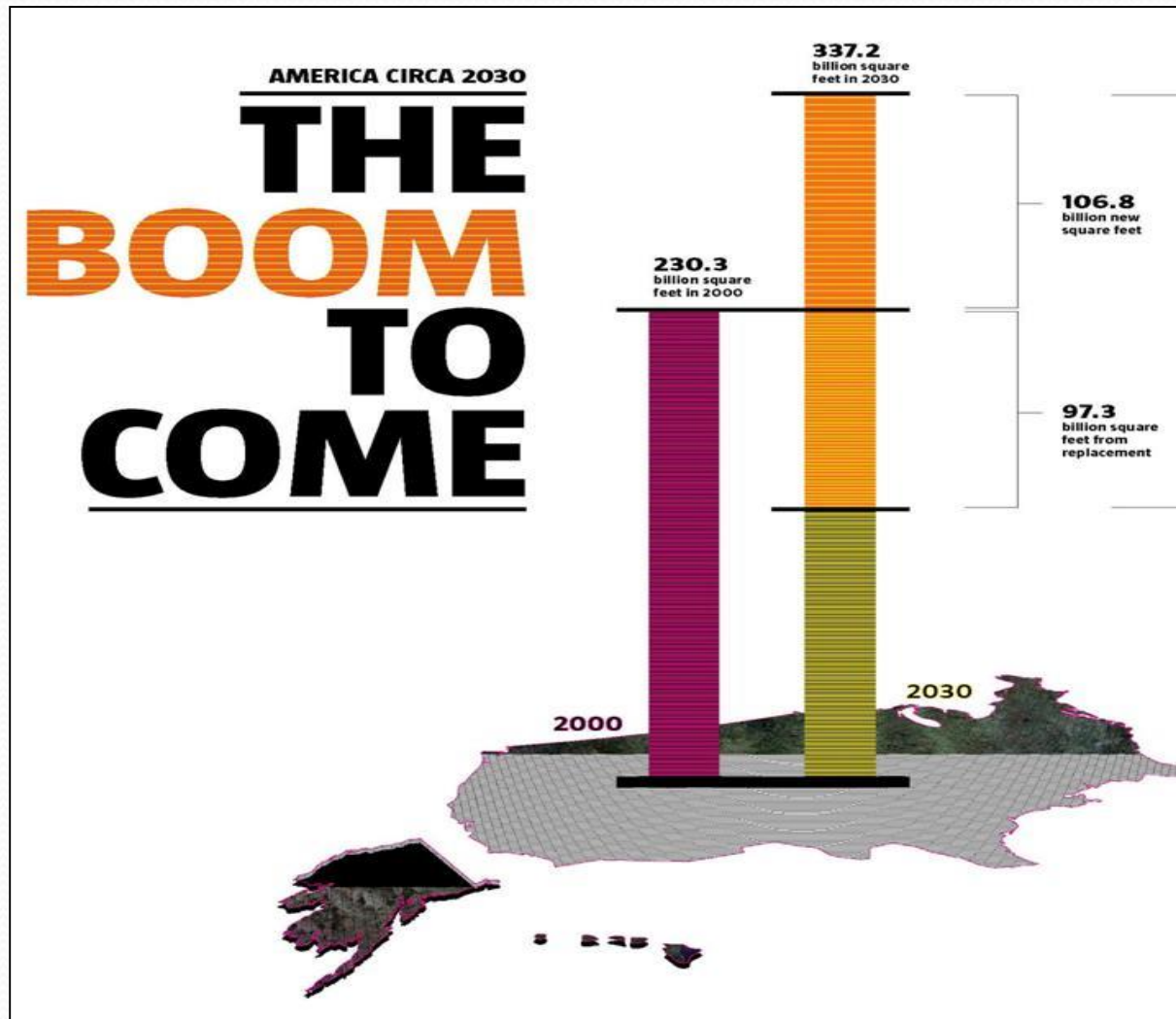
Demographic Trends: The Future



- Dr. Arthur “Chris” Nelson, FAICP
 - “More than half of the built environment of the United States we will see in 2025 did not exist in 2000.”

*Journal of the American Planning Association,
Vol. 72, No. 4, Autumn 2006.*

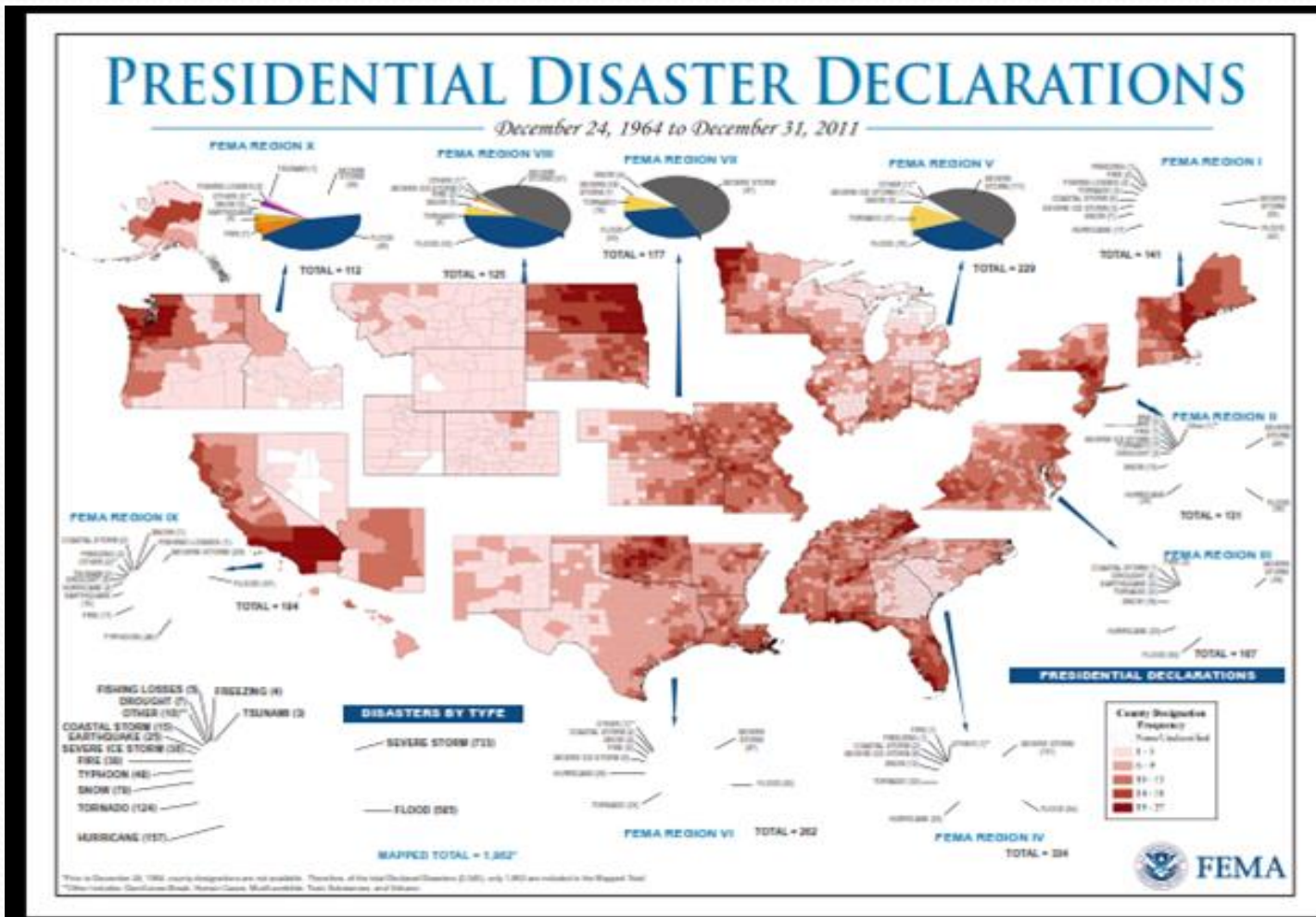
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www.architectmagazine.com

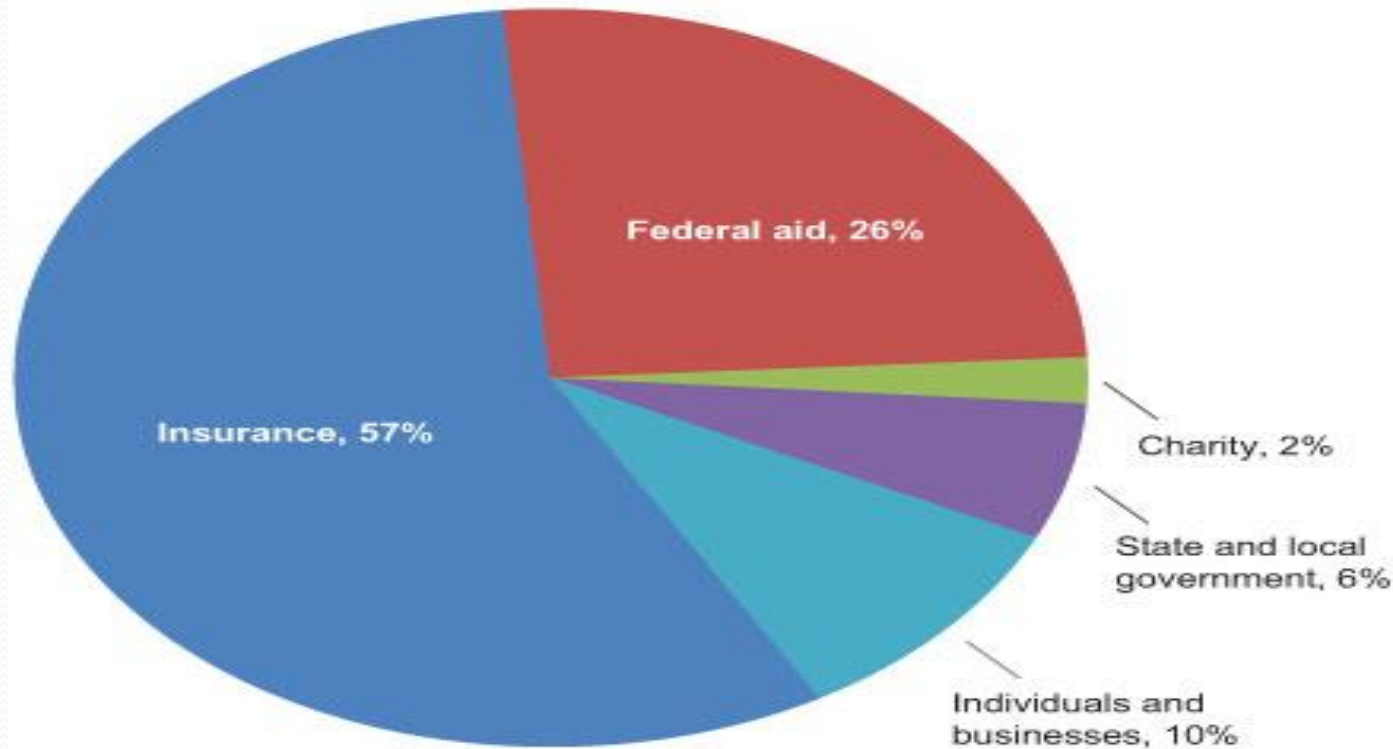
We Will Have Development

- Demographic Pressures Will Drive Development
- Often in Areas Where there Are Considerable Natural Hazards:
 - Tornadoes
 - Floods
 - Tsunamis
 - Earthquakes
- **We Need To Develop Safely and Affordably**
- **We Can Do It!**



Let's Look At Our System Of Disaster Relief

Share of Costs Paid for Major U.S. Hurricane Events, 1989-2004



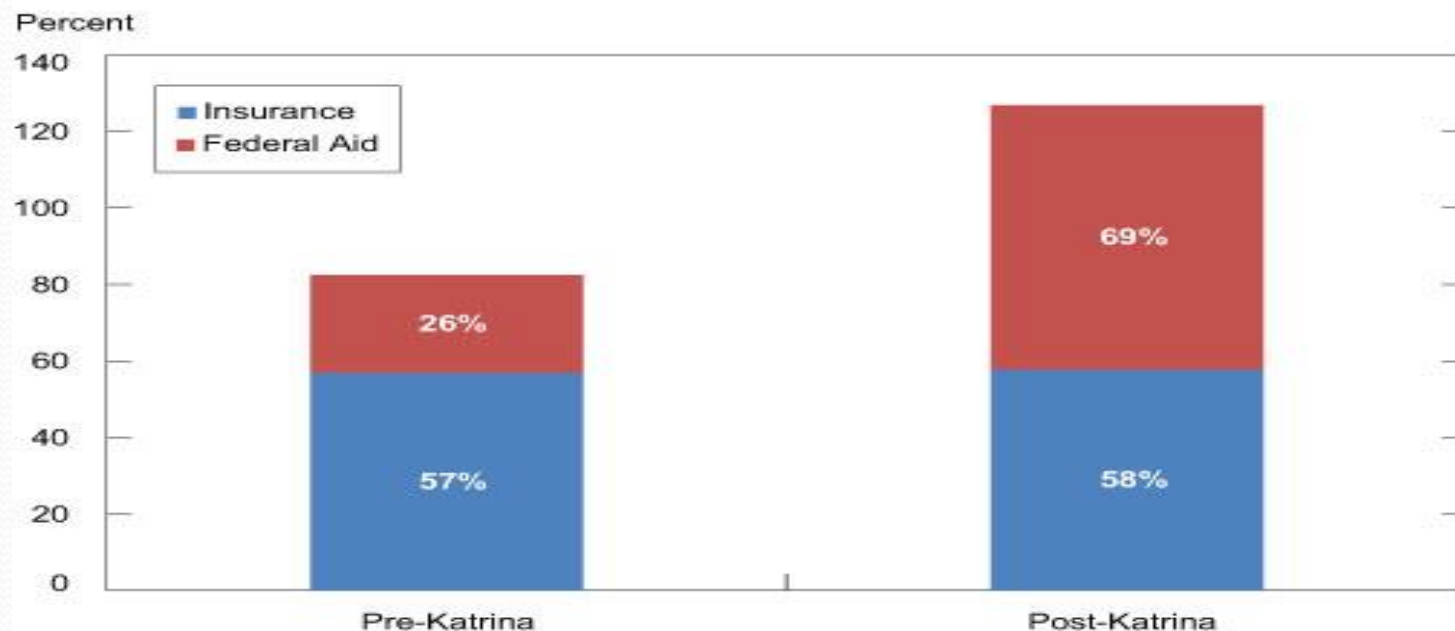
Source: Authors' calculations, based on "Federal Financial Exposure to Natural Catastrophe Risk," by J. David Cummins, Michael Suher, and George Zanjani, 2010. In *Measuring and Managing Federal Financial Risk*. NBER Conference Report. Chicago: University of Chicago Press.

Flood insurance Payments Not Included

From a Study by the Federal Reserve Bank of New York

Assistance Not Including Flood Insurance Payments

Share of Costs Paid by Insurance and Federal Aid for Major Hurricane Events Before and After Katrina



Source: Authors' calculations, based on data in Cummins, Suher, and Zanjani (2010).

NY Federal Reserve Study:

How Will We Pay For Superstorm Sandy?

- **“With this expansion of federal disaster assistance, payments from private insurance companies and the federal government exceeded the total economic cost of events since Katrina by about 25 percent. This pattern suggests that an excess amount was distributed to state and local governments and affected individuals and businesses... Clearly, though, some businesses or individuals may not have been fully reimbursed for their out-of-pocket expenses, despite the excess payments in aggregate.”**

A Quick Note On: Koontz v. St. Johns River Water Management District, No. 11-1447, (U.S. June 25, 2013)



- This Supreme Court decision produces all sorts of fairly wild and alarmist articles quoting Attorneys who basically are predicting that the sky is falling the monetary requirement is "devastating" to land use planning
- Other Attorneys view this case a major victory for property owners; and a defeat for government regulation
- Case is really an enormous opportunity to promote Resilience

Can *Koontz* be an Opportunity to Promote More Resilient Communities?

- The Supreme Court clearly agrees with the idea of safe development based planning. Justice Alito wrote in the majority opinion:
- "Insisting that landowners internalize the **negative externalities** of their conduct is a hallmark of responsible land-use policy, and we have long sustained such regulations against constitutional attack. *See, Village of Euclid v. Ambler Realty Co.*, 272 U. S. 365 (1926). **[emphasis added]**
- *See, e.g.*, Turning *Koontz* into an Opportunity for More Resilient Communities located on the ABA website at:
http://www.americanbar.org/content/dam/aba/administrative/state_local_government/land_use.authcheckdam.pdf

Negative Externality is a Cost of a Transaction Not Paid By the Party Which Benefited

- Some win; some loose
- “In this day in age, with population densities rising, behaviors with harmful side effects have been growing more important. To foster continued prosperity, and even more drastically--the planet’s survival, requires clear thinking about how to mitigate the resulting damage” Robert H. Frank, *Ronald Coase, a Pragmatic Voice for Government’s Role*,
<http://www.nytimes.com/2013/09/15/business/ronald-coase-a-pragmatic-voice-for-governments-role.html>

Economics and Externality

- **When one group pays maintenance or replacement of something yet different person or group uses that same something, we often have problems**

- **Poorly designed/constructed development followed by disaster assistance is a classic example of externality**
 - **Who Pays For Disaster Assistance?**
 - **Who Benefits?**

Who Pays For Disaster Assistance?

- Costs of flooding are usually largely borne by:
 - a) The federal and sometimes the State taxpayer through IRS Casualty Losses, SBA loans, Disaster CDBG funds, and the whole panoply of Federal and private disaster relief described in the publication:

Planning and Building Livable, Safe & Sustainable Communities: The Patchwork Quilt Approach
 - b) By disaster victims themselves

Cui Bono? (Who Benefits?).....

- **From Unwise or Improper Development In Areas Subject to Foreseeable Natural Hazards**
 - a) Developers?**
 - b) Communities?**
 - c) State Government?**
 - d) Mortgage companies?**
 - e) The occupants of floodplains? Possibly in the short-term, but usually NOT in the long-term**

Our Challenge

- Disasters are bad, getting worse; **will continue to get worse unless we change** our development and redevelopment practices quite dramatically;
- **There are multiple paths** to reduce misery and suffering include:
 - Architect and Engineer “Standard of Care”
 - Insurance Industry efforts
 - Government efforts
 - California earthquake building codes, mitigation grants

A Standard of Care Thought from the American Society of Civil Engineers (ASCE)

- The first Fundamental Canon of the American Society of Civil Engineer's (ASCE) Code of Ethics states that:
“Engineers shall hold paramount the safety, health, and welfare of the public....”
“This canon must be the guiding principle for rebuilding the hurricane protection system in New Orleans.
And it must be applied with equal rigor to every aspect of an engineer’s work – in New Orleans, in America, and throughout the world.”

Standard of Care for Planners

- “Planners are required to address social equity in their work as part of APA’s AICP Code of Ethics and Professional Conduct. As Hurricane Katrina and heat wave mortality figures teach us, lower-income and elderly populations are more at risk and will bear the brunt of many climate change impacts. As a consequence, **planners need to ensure that the responses they develop to address the impacts of climate change take into account the varied needs of all sectors of the community, in order to equitably meet the significant challenges facing us.**”
- *(From “Policy Guide on Planning and Climate Change,” American Planning Association, April 11, 2011 **emphasis added**)*

Suggested Changes to Federal Policies

- *Reforming Federal Support for Risky Development*, by David Conrad and Ed Thomas
 - This paper suggests ways to reduce federal expenditures by approximately \$40 billion over a 10 year period.
- Published by the Hamilton Project of the Brookings Institute in 2013 in *15 Ways to Rethink the Federal Budget*
 - Available online for your reading pleasure:
<http://www.brookings.edu/research/papers/2013/02/reform-federal-support-risky-development>

Key Issues

- We are losing the battle for a safe and sustainable society in the United States and throughout the world
- Looking to the past for a vision of future risks, in an era of climate variability and change is even less likely to work than ever before

Looking Only at Past Events For Future Guidance Is Like: Driving Down the Highway at 80 Miles an Hour Steering By Looking in the Rear View Mirrors Only

Unlikely to produce safe results!



Climate Adaptation
permits,
even requires us to
look forward too!

Could Climate Change be to Blame for Recent Extreme Colorado Weather Events?

- Climate change can make heat waves more likely and more severe, according to a study in the Bulletin of the American Meteorological Society that found fewer clear links to extreme weather such as drought and storms.
- With Respect to Colorado Flooding:
- “(T)he chances of heavy rainfall like the deluge that caused flooding in Boulder, Colorado, last year, are probably lower because of human-caused weather changes.
- Link at: http://www.propertycasualty360.com/2014/09/30/could-climate-change-be-to-blame-for-extreme-weather?eNL=542bo8bo14oba017428b4567&utm_source=PC360DailyNews&utm_medium=eNL&utm_campaign=PC360_eNLs&_LID=118409543

How To Use Basic Principles To Address The Growing Toll Of Disasters?

- Business as usual is not working well enough
- Build bridges-links
- Make more friends and allies - many have very little knowledge or strong positive feelings about hazards
- We need to reach those we may not like:
 - government, civil servants, bureaucrats, and a whole lot more
 - Those who believe things we don't believe!
- ENGAGE POTENTIAL ROADBLOCKS!

We Need to Reach Folks Who Normally Do Not Like Or Agree With Us

- Our message of better, safer design must be prepared for delivery to many audiences
- We need to know and understand what they care about, so we can develop a message rooted in economics & safety they will care about

So, How Do You Know An Audience?

- Listen
- Discussion
- Talk
- Learn
- **Show you care about what concerns them, so they care about you and your message**

For Years NHMA Has Been Saying We Need To Reach Others With Well Considered and Crafted Messages

- Now others are saying much the same thing!
- The World Bank:
- Stéphane Hallegatte from the World Bank located in Washington, DC observed at a Conference I just attended that in order to make adaptation work in practice, we need an entirely new narrative - a new way of conceiving of adaptation: “Policymakers need another story than ‘We need to prevent a disaster!’ The real story of adaptation is that it leads to improving things. We have to help people recognize the benefits.”

Messaging

- Many folks who fervently believe Climate Change is hooey or a plot have other beliefs...
- E.g. belief in God, the United States, helping one's neighbor, and the need to love and protect land & quality of life for future generations
- Belief in reducing the role of government in our lives
- So... How do we get a harm prevention message across to them?

Summary

Fundamentally our society must choose either:

Better standards to protect resources and people

or

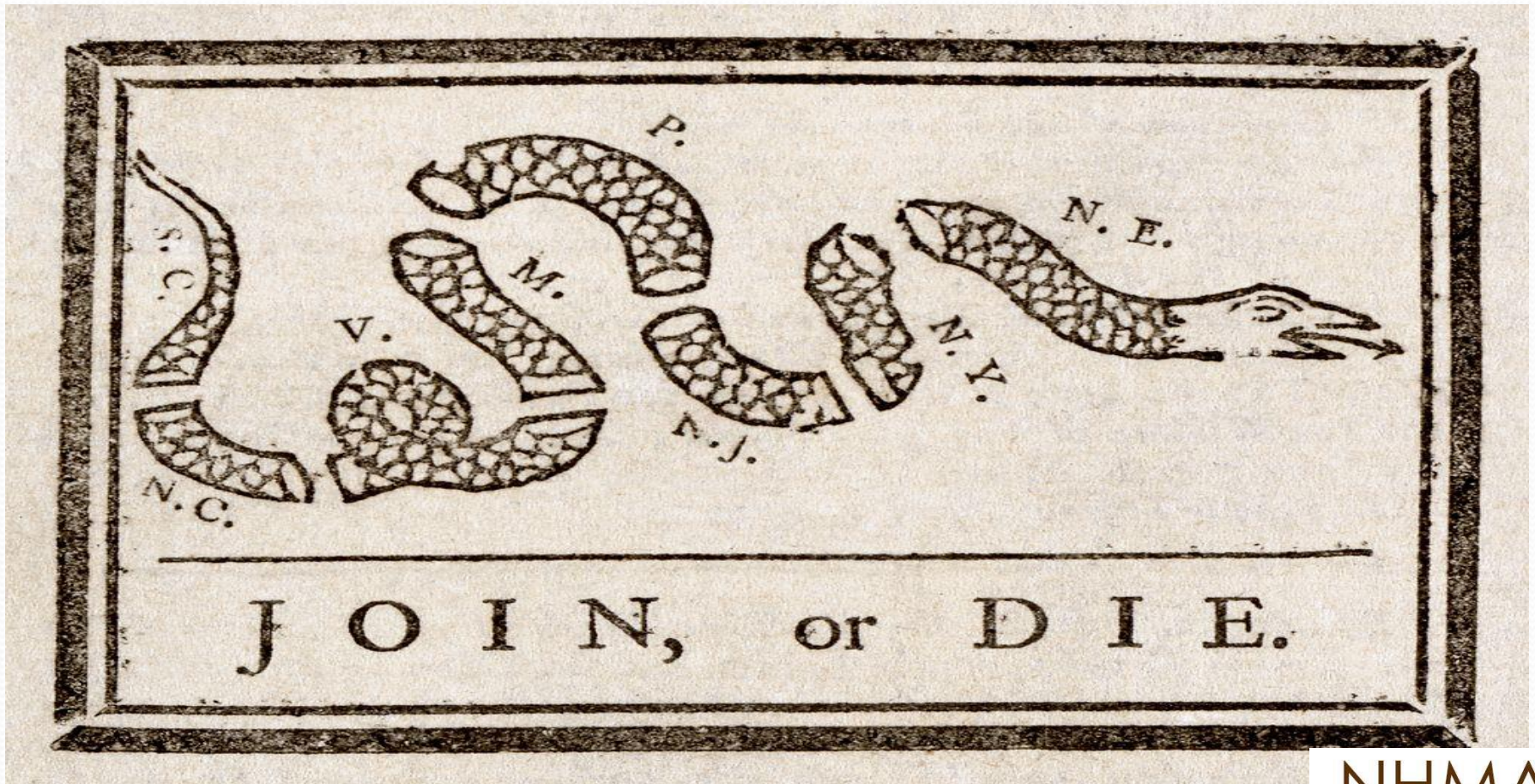
Standards which inevitably will result in destruction **and litigation**

**We Need To Make Allies and Friends
To Get Our Message Across**

FIND THE COMMON VALUES AND START THERE

**All of us can and should play a key role in planning a safe
and sustainable future**

Final Thought Courtesy of Ben Franklin: All of US Who Care About a Safer, Better Future Need To Work Together



Who Has to Unite?

- What do you folks think?

A scenic view of a river with multiple small waterfalls and rapids, surrounded by greenery and rocks. The water is dark and turbulent as it flows over the rocks, creating white foam and splashes. The background shows a grassy bank with some trees and shrubs.

Questions and Answers
At the Conclusion of the Panel, Please

Thank You

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