



Opportunities for Integration of Remote Sensing Integrated Assessment and Adaptation

Aspen Institute

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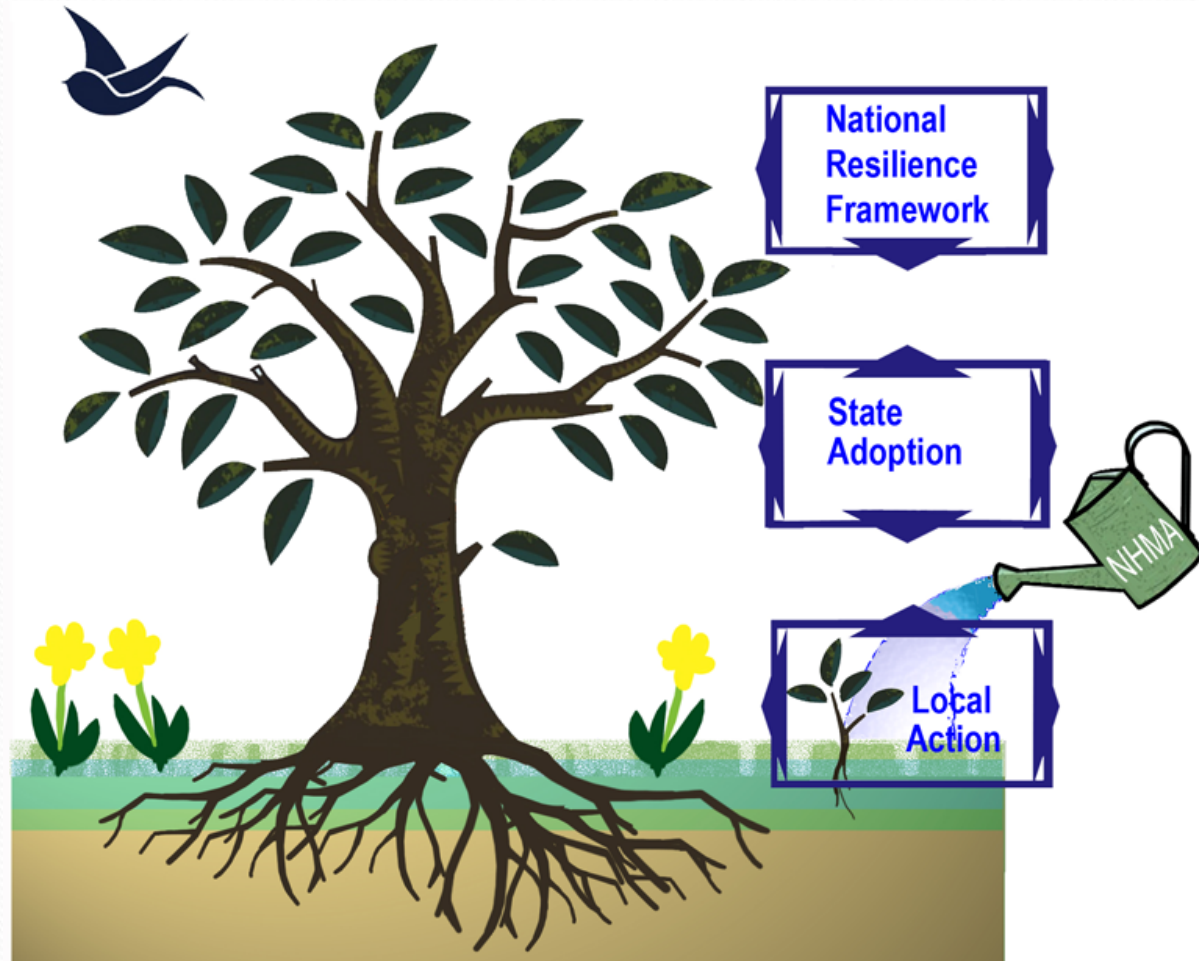
Disaster Risk Reduction: Plain Common Sense

- *"Disaster risk reduction is not a luxury. It's an essential insurance policy for a more disaster-prone world, and one of the smartest, most cost-effective investments we can make in our common future. The benefits of this investment will be calculated not only in dollars saved, but most importantly, in saved lives."*
- *Jan Egeland, Former U.N. Under-Secretary General for Humanitarian Affairs and Emergency Relief Coordinator*

What is NHMA?

Created in 2008

To bring together
individuals &
organizations
interested in
Hazard Mitigation
and
Climate Adaptation



Our Focus:

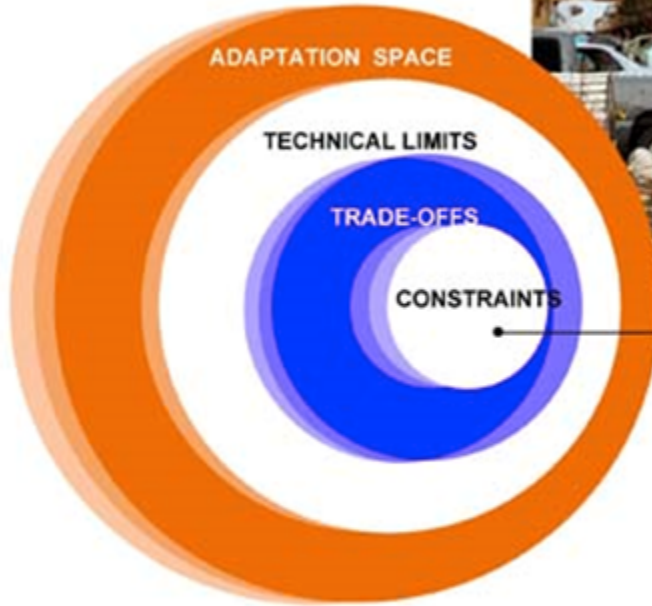
Development Decision Making
Designed to Promote Disaster Risk Reduction
Promote Resilience Designed to Bounce
Forward to a Safer More Just and Fair World

- Encouraging:
 - A) development of integrated, cross-silo information useful for development decision-making
 - B) educating, persuading & proselytizing for the understanding and use of such information
 - C) Identifying impediments to implementation
 - D) Working to overcome those impediments

Resilience and Disaster Risk Reduction

Resilience & Climate Adaptation are a huge concepts
They are also moving targets as the climate varies

**Think of the
arrows being shot
at the target as
development
resources**

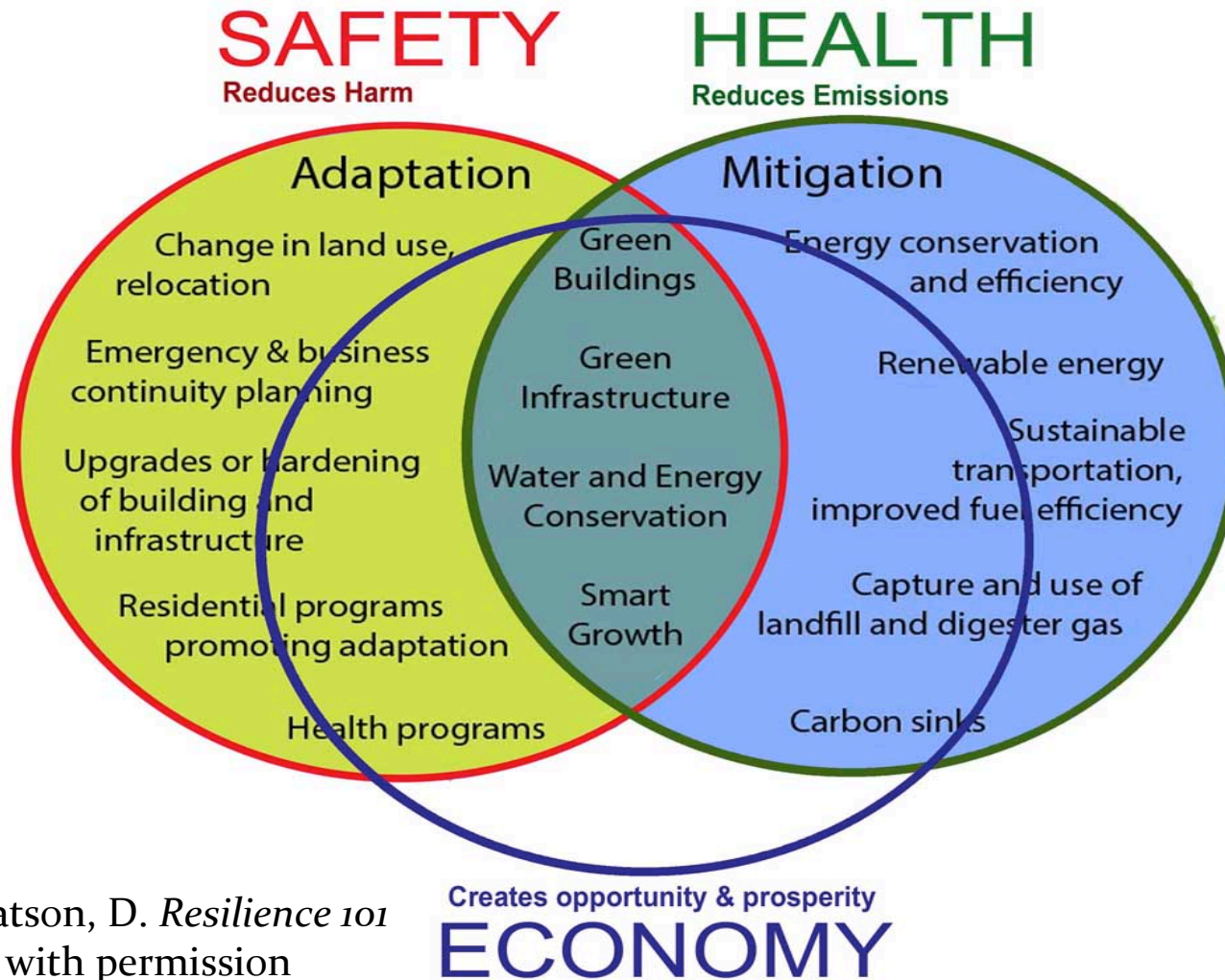


What we must do



**We at NHMA focus in on the Disaster Risk Reduction
Portion of Climate Adaptation and Resilience**

Finding the Bullseye

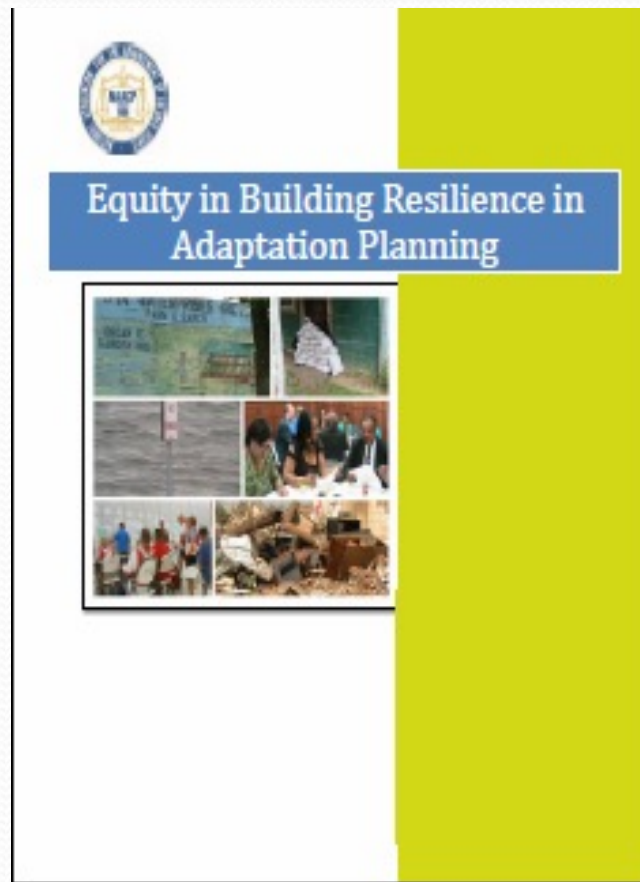
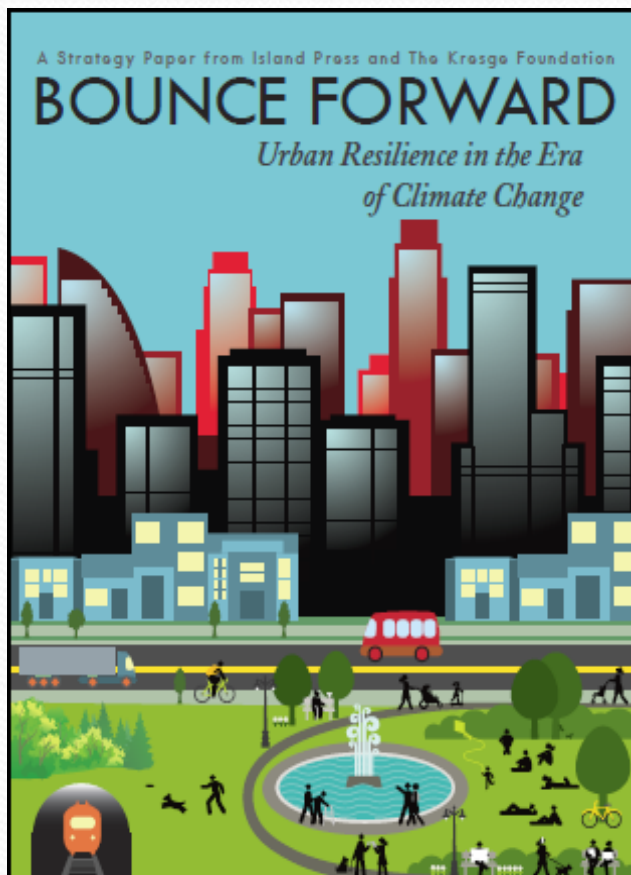


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Prosperous and just economy

Brilliant Publications

Designed to Promote True Resilience Including Disaster Risk Reduction for ALL



See, <http://nhma.info/resources/recommended-reading/>

Trends in Damages Following Natural Events

- **Wind, Flood, Earthquake, Wildfire losses are increasing quite dramatically**
- **Demographic trends indicate great future challenges**
- **More challenges from sea level rise**
- **Even more challenges likely from climate change**

How Much Has the Federal Government Spent on Disasters Since 1983

- Any thoughts?
- See, Focusing on Disaster Costs Before Rather Than After They Happen, Insurance Journal, August 6, 2014
<http://www.insurancejournal.com/news/national/2014/08/06/336796.htm>
- Billion-Dollar Weather and Climate Disasters: Overview, NOAA, available at: <https://www.ncdc.noaa.gov/billions/>

Safe Development Is Affordable

- The **American Institutes for Research** has conducted a detailed study on the cost of floodproofing and elevation
- That study supports the idea that elevation and floodproofing **costs add very small sums** and have a significant societal payback
- The **Multihazard Mitigation Council**, a group which includes private industry representatives, reports that hazard mitigation has a **proven 4-1 payback when retrofitting** past mistakes
- Other Organizations calculate that safe design or redesign following a disaster has a payback of 10-1 or greater

Please Understand That There Are Impediments to Implementing Climate Adaptation

NOAA completed a study which surveyed planners as to impediments to safe development

- Three major reasons cited:
 - Fear of the “taking” issue
 - Lack of comprehensive risk data
 - Economic pressure

Reason #1 For Insufficient Standards: 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
- 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 Ed Thomas et al. 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 Floodplain Development -
 - a) Developers?
 - b) Communities?
 - c) State Government?
 - d) Mortgage companies?
 - e) The occupants of hazardous areas?
- Possibly in the short-term, but
definitely NOT in the long-term

Reason #2 Why Safer Standards Are Not Implemented:

Legal Concerns Including:

Unconstitutional “Taking”

I would add Perception of Immunity

The Law is Clear on Safe Development

- The Supreme Court agrees with safe development based planning. Justice Alito wrote in the majority opinion in a recent Supreme Court Case, *Koontz v. St Johns River Water Management District*:
- "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, *Koontz v. St Johns River Water Management District*, No. 11-1447, (U.S. June 25, 2013)

Hazard Based Regulation And The Constitution

- Hazard Based Regulation Generally Sustained Against Constitutional Challenges
- Goal of Protecting the Public Accorded **ENORMOUS DEFERENCE** by the Courts

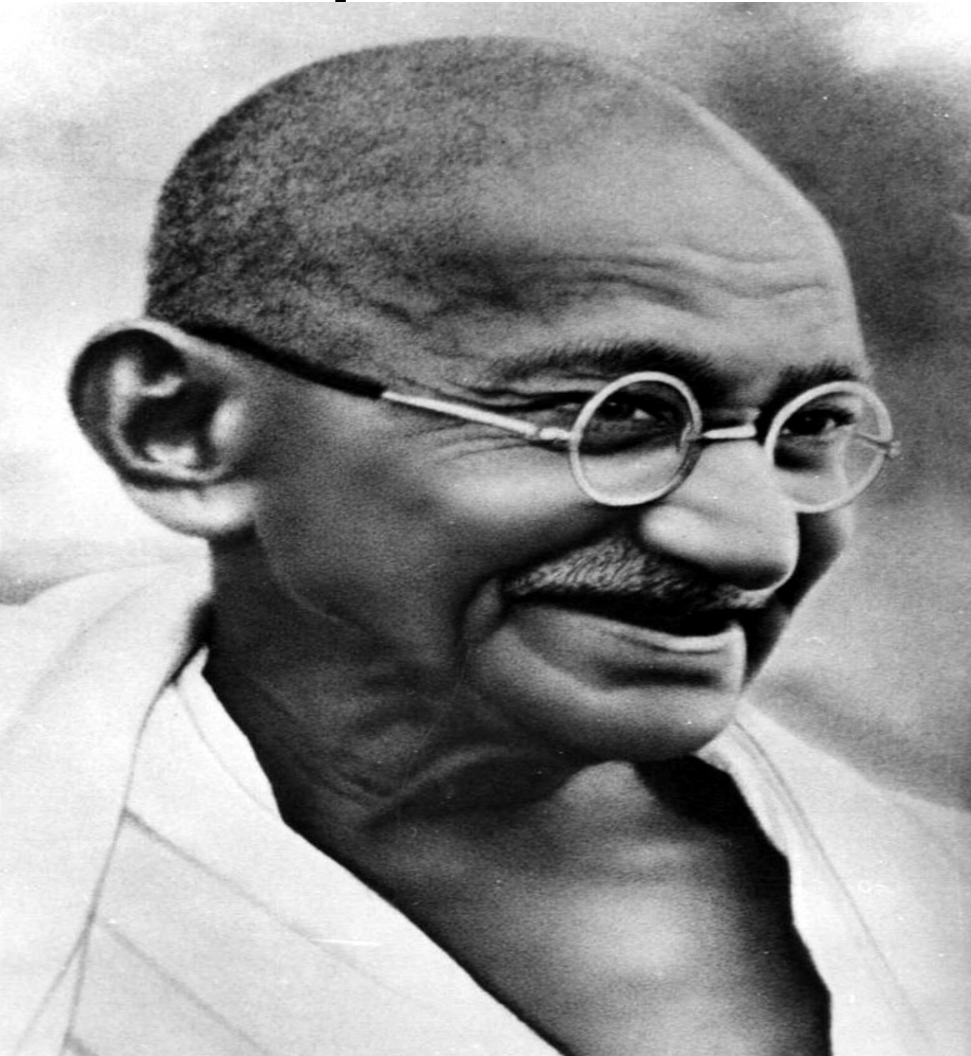
Conservatives Agree

- The Cato Institute Indicates that **Compensation is Not Due When:**

“... regulation prohibits wrongful uses, no compensation is required.”

“When the government acts to Secure Rights-when it stops someone from polluting his neighbor ... it is acting under its police power ... because the use prohibited ... was wrong to begin with.”

Equity and Morality Support Safe Development



According To Gandhi's Writings

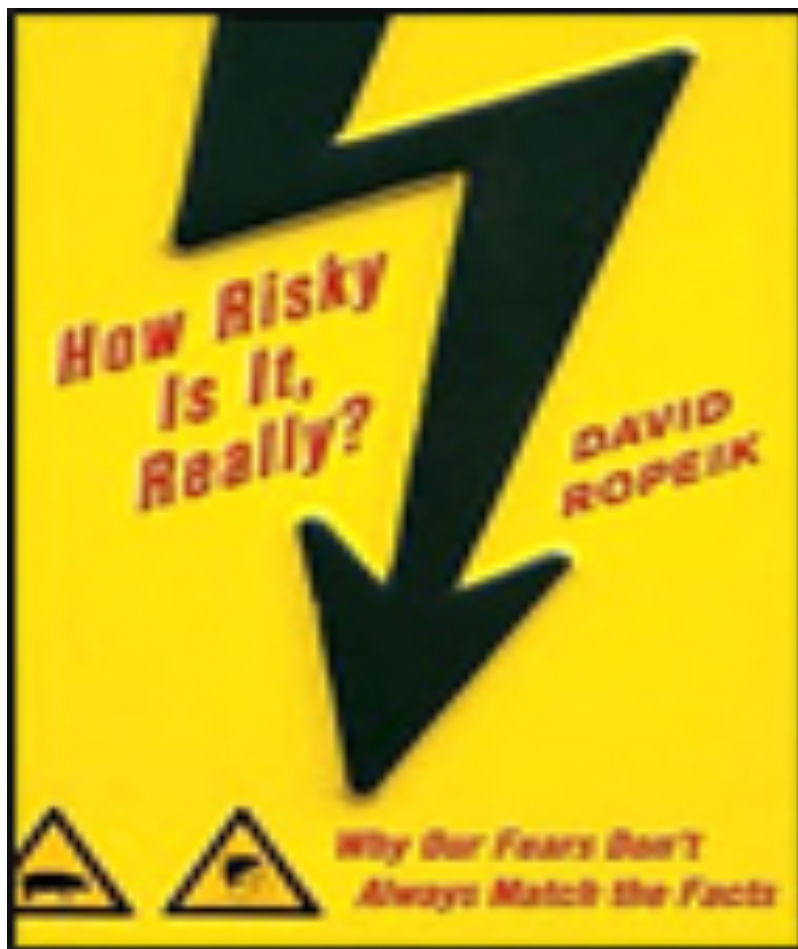
***“Sic Utere Tuo Ut Alienum Non Laedas”* That Is, In English: Use Your Property So You Do Not Harm Others Is:**

- **“A Grand Doctrine Of Life And The Basis Of (Loving Relationships) Between Neighbors”**
- **The concept of using property so it does not harm others is important any Climate Adaptation discussion**

Impediment #3: Lack of Comprehensive Cross –Silo Information Designed to Facilitate Good Decisions

- **Information is often not timely**
- **Information is misunderstood by decision-makers**
- **Information rarely is sufficiently cross-siloed to facilitate good decisions**

Another Impediment



Humans have difficulty taking action with respect to high consequence/low probability events-like disasters

Overcoming Impediments: Paths Forward

- **Understanding how much morality, the law and equity support safe development**
- **Understanding the need for current, actionable, understandable information on risk**
- **Educating on true risk**
- **Influencing transformative behavior change through higher standards of care; litigation; inspiration; risk based insurance**

Opportunities to Overcome Impediments! Higher Standards for Future Development



- Dr. Arthur “Chris” Nelson, FAICP at the Rocky Mountain Land Use Institute March 13, 2015
 - “More than half of the built environment of the United States we will see in 2050 does not exist today.”
 - *Update on information contained in: Journal of the American Planning Association, Vol. 72, No. 4, Autumn 2006.*

Sadly We Are Not Taking The Opportunity to Develop Safely in most Places



Courtesy of Pete Rabbon USACE

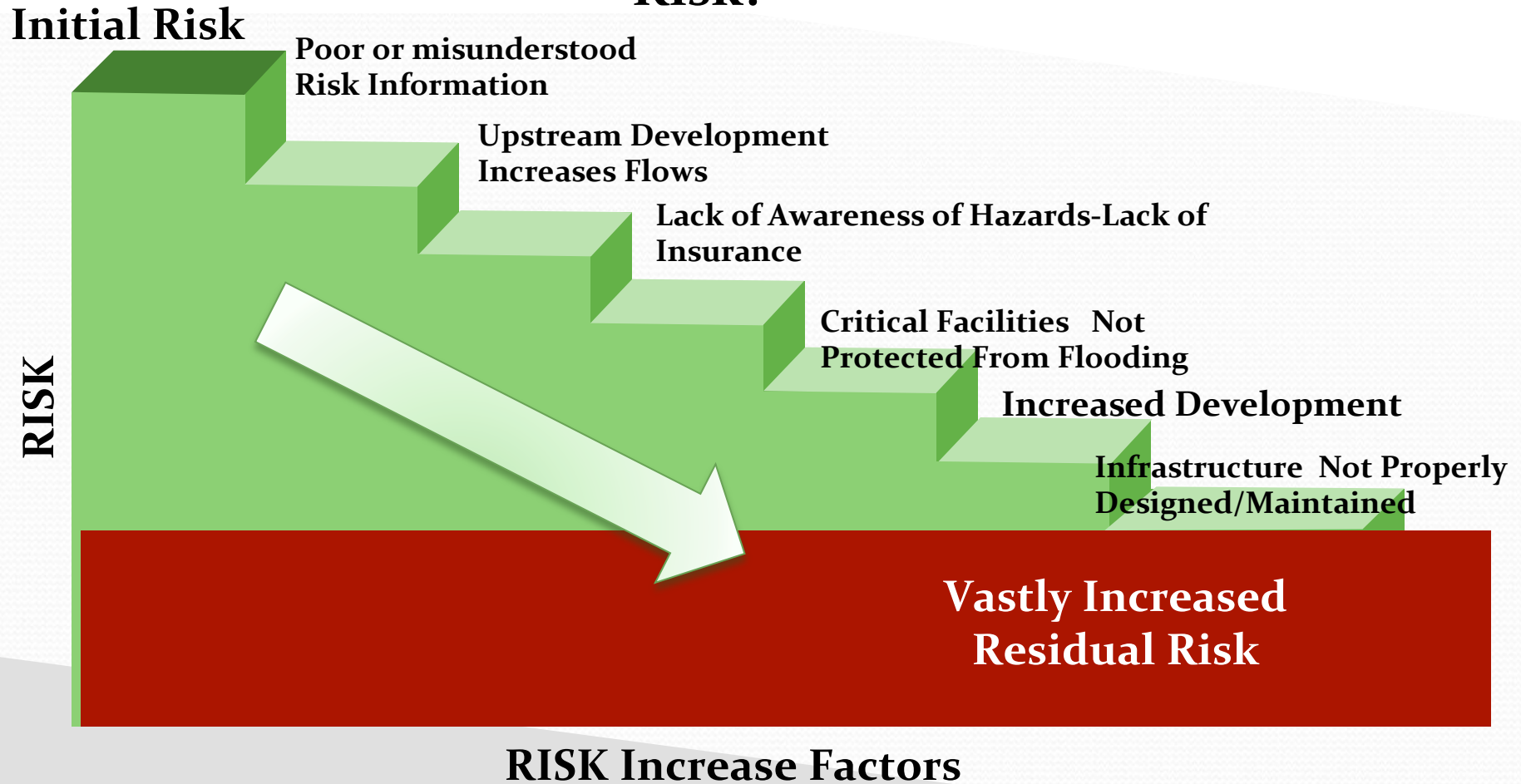
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Jun 2007

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The whole community Can Contribute to Increased Risk!



The Choice of Development or No Development is a False Choice!

The Choice We Have as a Society is Rather Between:

1. Well planned **development that protects** people and property, our environment, and our precious Water Resources while reducing the potential for litigation; or
2. Some current **practices that are known to harm** people, property, and natural floodplain functions-... and may lead to litigation and other challenges

Approaching Our Problems Together

- As we think about how best to use any data we must think in a systems analysis manner to solve our serious problems we must include 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 & irresponsible behavior.
- We can find a path forward around the impediments to a better safer future.

Needed: A Common Understanding of Disaster Risk Reduction-Delivered By Multiple Folks

- We need to repeatedly deliver knowledgeable messages of disaster vulnerability reduction, safety, and security, with regional and locally based mitigation suggestions, such as:
- build **safe rooms**, and have higher **wind load building standards** in areas subject to high probability of high winds/tornadoes;
- carry out community and individual **wildfire protection** in areas subject to such risks;
- design and retrofit to reduce **earthquake** damage;
- build with higher **freeboard** (generally 4 feet or more) in areas subject to floods, understand the limitations of flood frequency projections based on the past, which include many unrealistic assumptions;
- recognize the need to protect **water quality**, ecosystem services and threatened and endangered species

NHMA IS Developing a CROSS-CUTTING DRR Ambassador Curriculum

Multihazard

Multidisciplinary

**Part of the larger national and international efforts to
support “Whole Community” Resilience.**

An American Bar Association Recommendation on Overcoming Economic and Other Impediments

Summary of ABA Resolution 107 E:

“The following recommendations of the Financial Services Round Table Blue Ribbon Commission on Megacatastrophes are highly desirable loss mitigation suggestions:

- > State of the art building codes**
- > Cost-effective retrofitting**
- > Land use policies that discourage construction posing high risk to personal safety or property loss.**
- > Property tax credits to encourage retrofitting**

These and related elements of loss mitigation are designed to ultimately bring to market affordable insurance policies with broadened coverages.”

We Can Find Solutions

- **Changing hydrology, sea level rise, fire risks and exposures, and other climate impacts...**
- **Higher Development Standards can be used to stop making things worse as investments and populations inevitably increase**
- **We have opportunities to change policy NOW**
- **Right now we have a system which rewards dangerous and behavior that hurts far too many, now and for a long time**
- **We need to adapt by removing perverse incentives, reward good planning, safe building, and safe reconstruction**

Summary

- **Fundamentally Our Society Must Choose Either: Better Standards to Protect Resources and People or Standards Which Inevitably Will Result in Destruction and Litigation**
- **The people in this room will play a key role in helping create a safe and sustainable future or in failing to prevent actions which will make worse the incredible disaster response and recovery challenges we already face**

This Meeting is vitally needed!

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

