

# SREX and moving forward with climate adaptation

Lisa Dilling, University of Colorado Boulder  
Annual Natural Hazards Research and Application  
Workshop  
July 15, 2012

# 1. Impressions of SREX

---

- Very comprehensive literature review, all in one place
- Good balance between different threads and perspectives on the root causes of vulnerability
- Good inclusion of DRR and climate adaptation literatures
- Very long!
- Audience for report? Hard to imagine local stakeholders using this report to help make decisions.

## 2. What are some SREX implications?

---

With a changing climate comes a greater demand for **proactive** adaptation processes” (Amundsen et al. 2010)

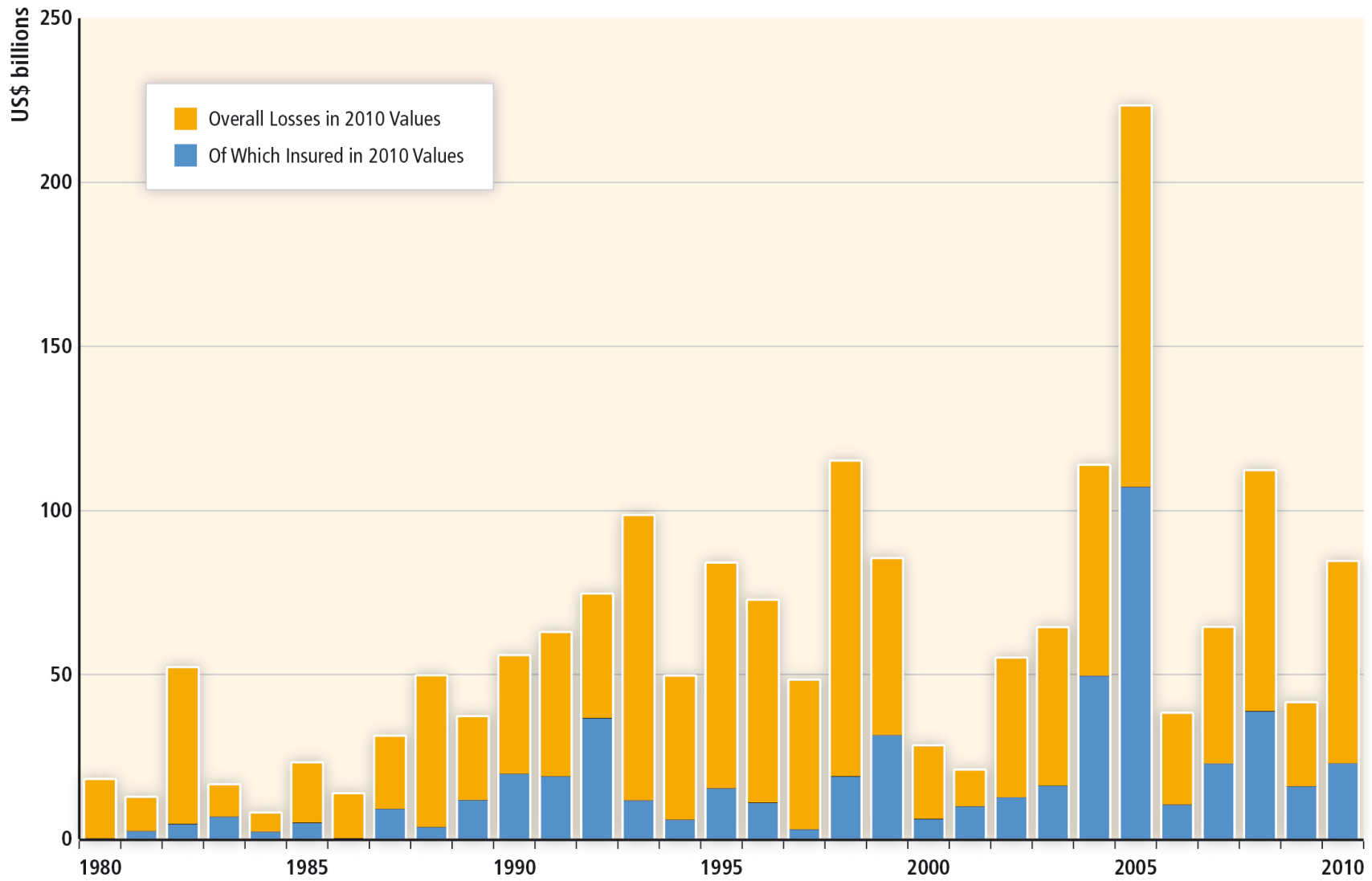
- Is this simply a matter of providing advance knowledge?
- Can we expect to improve on our existing record of acting proactively in the face of risk?
- What are the potential barriers in the policy arena to acting preventatively?

## 2. SREX and proactive action for DRR/adaptation

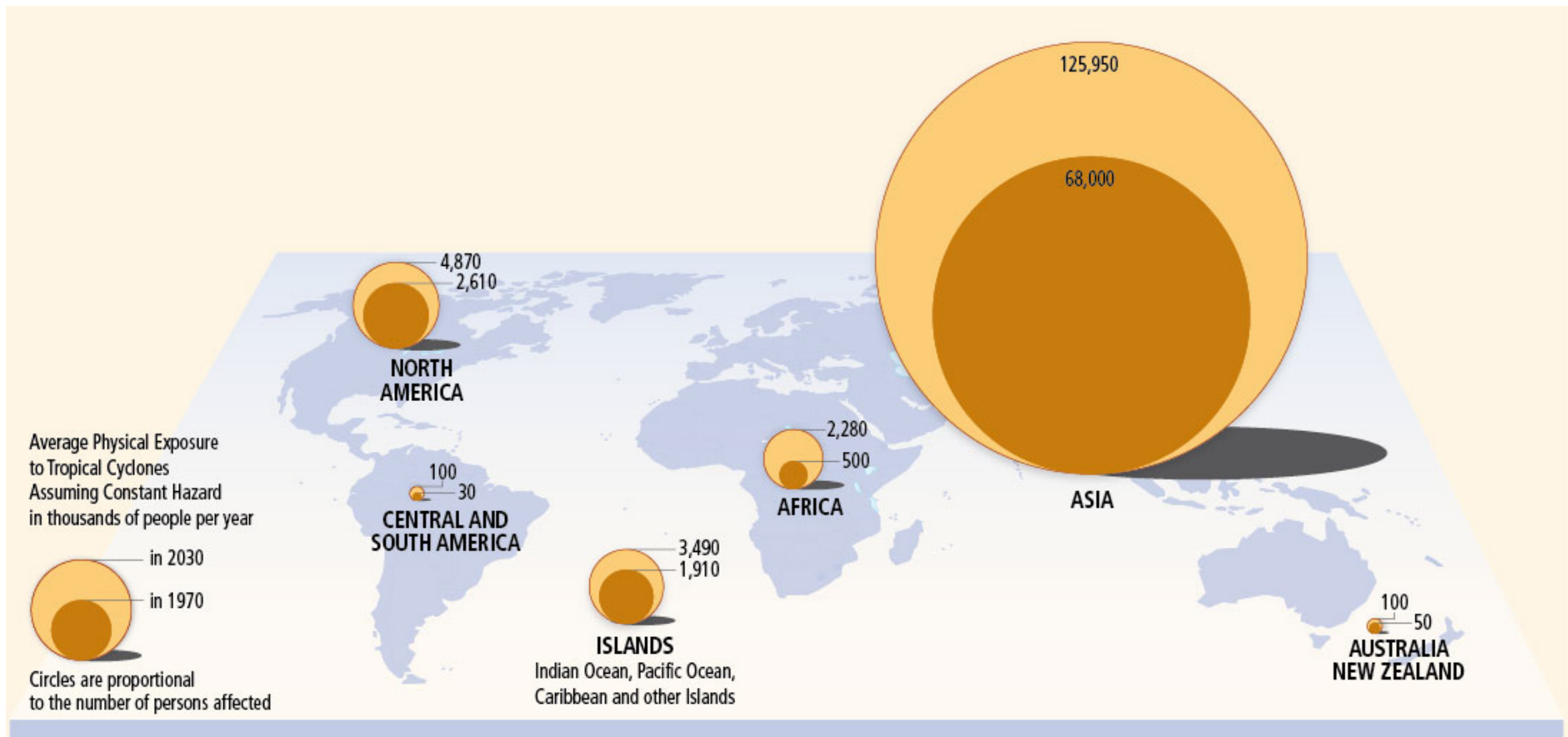
---

- Society is facing increasing financial losses from disasters.
- “Disasters are associated more and more with lesser-scale physical phenomena that are not extreme in a physical sense” (p. 34)
- This is being driven by an increase in underlying vulnerability.

# Increasing financial losses (fig. SREX 4-8)

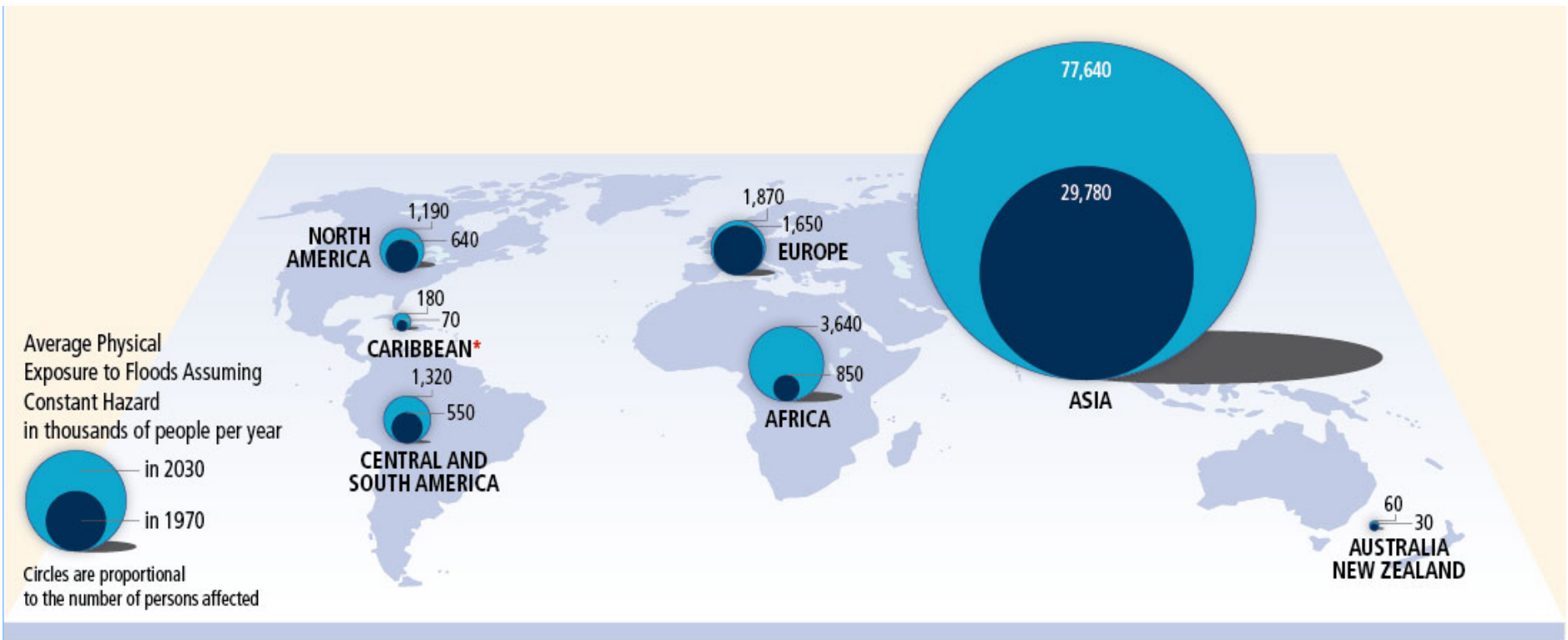


# Changing Exposure to tropical cyclones (constant hazard)



SREX Figure 4-1

# Changing Exposure to Floods (constant hazard)



\*Only catchments bigger than 1,000 km<sup>2</sup> were included in this analysis. Therefore, only the largest islands in the Caribbean are covered.

SREX Figure 4-2

# 1990 Wildland Urban Interface



Copyright 2011

Susan I. Stewart  
USDA Forest Service  
Northern Research Station  
sistewart@fs.fed.us

Volker C. Radeloff  
University of Wisconsin-Madison  
radeloff@wisc.edu

WUI version 3 based on the 2000 Census,  
the 1992-2001 NLCD Retrofit Change Product,  
and the Protected Areas Database version 1.1

## WUI

- Interface
- Intermix

## Non-WUI Vegetated

- No Housing
- Very Low Density Housing

## Non-Vegetated or Agriculture

- Medium and High Density Housing
- Low and Very Low Housing Density
- Water



# What can cause proactive behavior?

---

From SREX 5.4.1

- Previous strong focusing events (tend to be extreme) that generate public interest and personal attention of key leaders
- A social basis for cooperation including close inter-jurisdictional partnerships
- Supported collaborative framework between research and management

# But... SREX also tells us

---

From SREX 5.3.3

- Wide range of acceptance or resistance to challenges of risk management
- Previous disasters do not always result in risk reduction activities as a response
- Effective strategies such as changes in land use policy, zoning, acquisition of land are controversial, resisted and often not enforced
- Individuals whether by choice or not do not always act to reduce their own risk, e.g. not evacuating in times of risk

# AND... advance knowledge not a panacea...

- Hurricane Katrina in 2005
- Over 1800 deaths
- African-American, elderly, poor, infirm,
- Years later people still in trailers
- Large outmigration
- Lasting economic, social impacts



# “Most predicted disaster in American history” ~ Cigler 2007

From the local newspaper in 2002:

“Amid this maelstrom, the estimated 200,000 or more people left behind in an evacuation will be struggling to survive. Some will be housed at the Superdome, the designated shelter in New Orleans for people too sick or infirm to leave the city. Others will end up in last-minute emergency refuges that will offer minimal safety. But many will simply be on their own, in homes or looking for high ground”

~ McQuaid and Schleifstein 2002

So what is the connection between DRR, disaster management, and climate adaptation?

Logically, we might think...

- “Preparing for short-term disasters enhances the capacity to adapt to longer-term change” (SREX p. 304)

# But is this always true?

---

- Vulnerability is specific to levels of exposure
- Vulnerability can be created (or reduced) through multiple exposures to a hazard
- Vulnerability is site and system specific
- Socioeconomic context is constantly changing
- Risk perception matters
- Response to short-term vulnerability may reduce the flexibility of the system
- Response to short-term vulnerability may reduce vulnerability in one area, but create it in another

---

## Moreover, actions to reduce risk are not always straightforward

- Adaptive action for one group can increase risk for others
- Actions that seem adaptive at one spatial or temporal scale can be increase vulnerability over the long term



- 
- “Attention to **the *temporal and spatial dynamics*** of exposure and vulnerability is particularly important given that...disaster risk management strategies and policies can reduce risk in the short term, but may increase exposure and vulnerability over the longer term.”
  - “It is, however, difficult to make conclusive assessments about the effectiveness of disaster risk management in a changing climate, as overall the evidence base...remains limited and fragmented.”

IPCC SREX (2012)



- 
- So where do we stand with the knowledge represented by SREX and adapting to climate change?
  - A big challenge is a lack of generalizability.
  - Many statements of 'hope' about how communities may adapt that do not necessarily reflect the challenges on the ground.
  - Can we focus our research on what has worked to reduce risk?

# SREX last word:

---

“...underlying vulnerability remains high ... and economic and development trends continue to raise the stakes and present a choice: risk can be denied or faced, and adaptation can be forced or chosen. A reduction in the disaster risks associated with weather and climate extremes is therefore a question of political choice...”

SREX chapter 8

# Final thoughts..

---

- SREX tells us a lot about trends, what causes disasters and what can reduce risk ... but is slim on overarching guidance on how to navigate difficult political choices.
- Community initiatives are praised, but there can also be significant resistance to policy.
- How do we manage risk when there are differences in levels of risk tolerance?
- How are political, cultural and power differences bridged to reduce risk for everyone moving forward?