

California Adaptation Forum 2016 • Long Beach, CA
Session: Vulnerability Assessments – Now What? From Knowledge to Equitable Action



Thinking about vulnerability

Why does it matter? Why should we care?

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Premises

- When humans or something humans value is exposed to a hazard, we (should) begin to care about vulnerability
- A hazard is NOT the same as vulnerability
- Exposure to a hazard is just ONE component of vulnerability





Key questions you may ask about social vulnerability

- ▶ **Who** is most vulnerable to climate stress and disruption?
- ▶ **To what** are they most vulnerable?
- ▶ **In what ways** exactly are they vulnerable?
- ▶ **Why** are they so vulnerable?
- ▶ **What to do** about that?



Vulnerability – definition

- **Vulnerability = susceptibility to being harmed** depends on three factors:
 - **E = exposure** — size of the area and/or system, sector or group affected due to the magnitude of the stressor.
[is someone/thing at risk?]
 - **S = sensitivity** — characteristics of a system or population and the contextual conditions that influence the degree to which it is affected by a stressor [how severe could it get, if someone/thing is affected?]
 - **A = adaptive capacity** — capacities of the system, sector or population to resist impacts, cope with losses, and adapt to change
[can affected people/systems deal with it?]

Key components of vulnerability

Vulnerability = f (Exposure, Sensitivity, Adaptive Capacity)

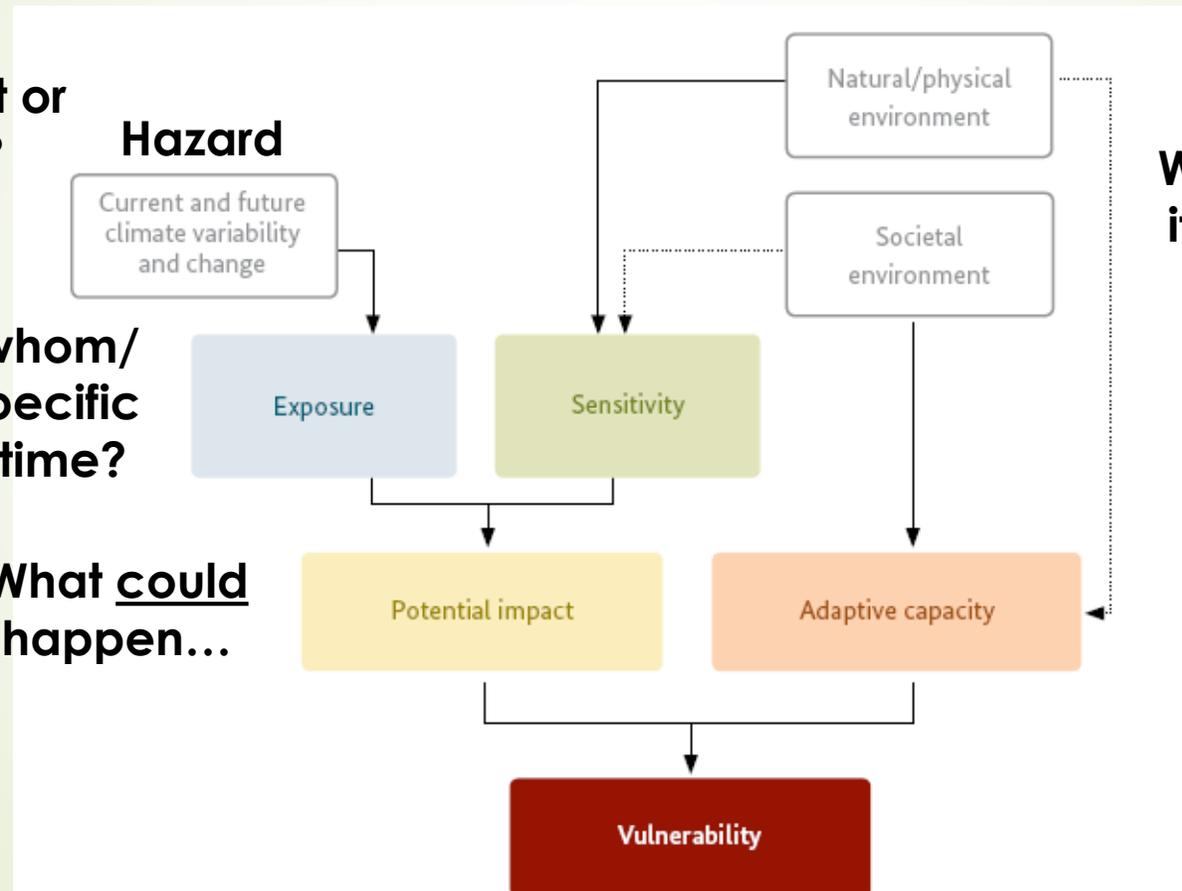
What event or stressor?

Will affect whom/
what in a specific
location & time?

What could
happen...

What makes
it more/less
bad?

...unless we have
the ability to deal
with it



Given all that:
How vulnerable are we?



Common approaches to social vulnerability assessments

- **Case studies**
 - In-depth, detailed
 - Often qualitative, often participatory
 - Causal understanding (incl. root-cause analysis)
- **Spatial analysis and mapping**
 - Quantitative (indices)
 - Geographic patterns, resolution varies, past and present
 - Based on various assumptions about drivers
 - (prospective modeling)
- **Social network analysis**
 - Quantitative
 - Limited scope
- **Temporal and spatial analogues**
 - Typically qualitative
 - Use past/present experiences (here/in other regions) and responses to hazards
 - Reveals vulnerabilities in context and adaptation options
- **Participatory mapping**
 - Typically qualitative
 - Engaging affected communities
- **Scenario analysis**
 - Typically qualitative
 - Often participatory
- **Agent-based or decision-analytic modeling**
 - Participatory, small-scale
 - Decision-centered
 - Reveals underlying factors

Why bother?

Social vulnerability analyses:

- provide a large amount of information in an integrative and visually useful manner
- identify and characterize who/what/why is exposed and sensitive to climatic risks
- characterize underlying drivers and its determinants
- offer a rational entry point for emergency preparedness and adaptation priority setting



Communication

Empowerment

**Practical basis for policy
and decision-making**

Priority Setting

How to address social vulnerability?

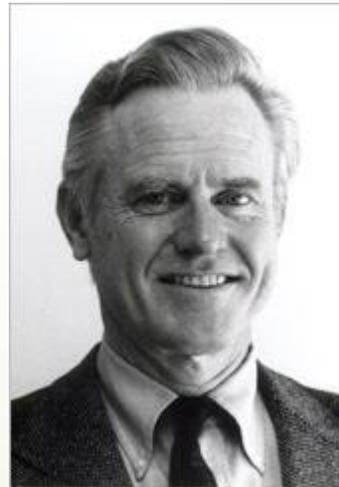
Interventions are required at MULTIPLE scales – household, neighborhood, community, region, state, federal, even international

Vulnerability component	Examples of interventions (examples)	Policy mechanisms (examples)
Reduce exposure	Limitation of new development in exposed areas Removal or relocation from exposed areas Protection from hazard in exposed areas	Zoning Hazard mitigation planning Buy-outs, relocation grants Building codes, retrofitting, compliance with NFIP req.
Reduce sensitivity	Reduce non-climatic stressors Foster healthy communities	Economic policy Environmental policy
Increase adaptive capacity	Enable self-reliance Enable community response capacity Improve recovery plans Develop long-term, systemic plans	Emergency response readiness Recovery planning Insurance Other financing mechanisms Improved governance Investment in education

Addressing social vulnerability

- ... is radical
- ... is transformative
- ... is courageous
- ... is difficult
- ... is beneficial for all
in the long run
- ... produces every-
day co-benefits

“It is impossible that only half the ship will sink.”



Henry W. Kendall
Winner of the Nobel Prize in
Physics, 1990

Nutshell: Addressing social vulnerability

- Builds community cohesion
- Increases civic engagement and democracy
- Strengthens local economies
- Diminishes social injustice and economic inequality
- Banks on and builds local self-reliance and leadership
- Saves lives and diminishes the risk of injuries and disruption of livelihoods
- Avoids political embarrassment in case of disaster



**Useful adaptation regardless
of uncertainties in climate**

How will you know it's working?

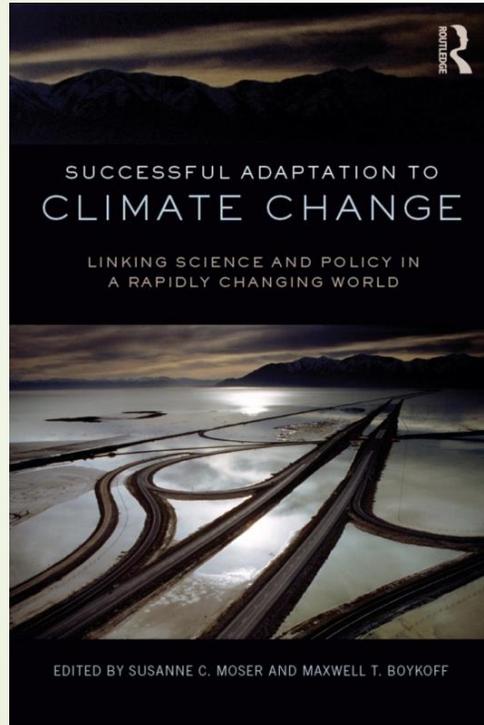


Evidence in case of emergency and daily life of a community

- Quicker response in case of disaster
- Faster recovery from events
- Greater self-reliance/ independence of social groups
- Greater economic diversity, stability
- Greater civic and political community engagement
- More cohesive neighborhoods
- Socio-economic status, educational attainment, public health improved
- Functional, well maintained infrastructure
- Greener, cared for neighborhoods



Thank you!



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