WELCOME

to the

Training in Social Vulnerability Assessments

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Julie Ekstrom, Ph.D.

L.A. Emergency Management Department • USC Sea Grant • April 21, 2015
“Tweeting Intros”

- My name is ...
- From ... [organization]
- What I want to learn about social vulnerability is...

... in 140 characters (i.e. 30 seconds) or less!
The second most wanted training

83. The State of California has provided guidance on how to incorporate sea level rise in local coastal programs and local decision-making. In order to build capacity within your community to do this, which topic(s) for potential webinars or workshops would you be most likely to attend? Please rank the following options in order of preference with 1 being most preferred. (If you hover your mouse over each topic area, a text box will appear with more information to help you rank your selections).

<table>
<thead>
<tr>
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Total | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | -               |

Source: USC Sea Grant. Pre-workshop series survey
## Overview of Training

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Topics</th>
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<tbody>
<tr>
<td>9:00 am</td>
<td>Welcome &amp; Introductions</td>
<td>Who is Here</td>
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<td>Exercise 1</td>
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A Few “Ground Rules”

- Participate fully, don’t stand by
- In small-group discussions, build on and explore others’ contributions
- Be here (cell phones on mute, minimize distractions)
- Bio breaks, one scheduled or as needed
- Enjoy!
"If a tree falls in the forest and no one is around to hear it, does it make a sound?"*

*Charles R. Mann and George R. Twiss (1910), *Physics*. (based originally on George Berkeley)
"If a tree falls in the forest and even if no one is around to hear it, does it matter that the tree is falling?"
"If a tree falls in the forest and someone is around to hear it, would that sound worry you?"

What if that someone were your child on a field trip?
"If a tree falls in the forest and someone gets struck by it but survives, what would increase their chances of being well again in a year from now?"
The “tree that is falling” is sea-level rise-related flooding (and other climate change risks)…
... and “there to hear it” are the cities, communities, neighborhoods and people you work for.
Training Goals

At the end of today, you will have a better understanding of

- what social vulnerability is and how you can examine it (with/without technical background)
- how addressing social vulnerability is useful even if you’re not legally required to do so
- how community strengths and weaknesses can become an empowering and creative way to engage the public
- how social vulnerability information can be used in emergency response, climate preparedness, adaptation and long-term planning
Exercise 1: Exploring Key Dimensions of 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?
Exercise 1: Exploring Key Dimensions of Social Vulnerability

- 1 table = 1 group
- Acquaint yourself with the scenario for your group
- Discuss questions in your group for 20 minutes
- Whole group debrief
Social Vulnerability: What is it?
Vulnerability research is interested in
- identifying patterns of **differential susceptibility** to harm
- explaining the reasons for those differences:
  - why some individuals or people (communities, neighborhoods etc.) are more exposed to hazards than others
  - why some people, places or things experience worse effects than others, and
  - why some people have lesser capacity to cope with the stress, to recover and adjust to change, and to influence and change their fortunes
- Exploring how these patterns and reasons change over time and space
Some Key Definitions

- **Hazard** – the threat posed by current or future climate, environmental condition, a technology or a societal event (e.g., riot, war)

- **Impact** – the (potential or actually) manifesting effect of a hazard on a place or community

- **Risk** – the probability of experience a certain (negative) impact at a certain time and place
Some Key Definitions (cont.)

- **Vulnerability** – the susceptibility to being harmed by something (e.g., the impacts of climate change)

- **Adaptation** – the actions taken (proactively or reactively) to adjust to changing climate/env. conditions

- **Resilience** – the capacity of a system to experience shocks while retaining essentially the same function, structure, feedbacks, and identity (= ability to absorb shocks) and recover due to its ability for self-organization, learning and adaptation
Attributes of top-down and bottom-up approaches to assessing vulnerability and adaptation. Source: Dessai and Hulme, 2004.
Impacts vs. Vulnerability Assessment

VULNERABILITY ANALYSIS

Multiple Causal Factors:
- Exploitation
- Resource Access
- Political Exclusion
- Market Fluctuations
- Unstable Policy
- Environmental Variability or Change
- Poor Infrastructure
- Poor Social Security System
- Lack of Planning

Specific Outcome:

LOSS OF LIVELIHOODS

IMPACT ANALYSIS

Single Climate Event:
- Drought

Multiple Outcomes:
- Reduced Wellbeing
- Dislocation
- Loss of Livelihood
- Hunger
- Famine
- Economic Loss

Source: Ribot (2013)
Vulnerability = susceptibility to being harmed depends on three factors:

- **E = exposure** — size of the area and/or system, sector or group affected (i.e., does the event occur there or might it occur there under climate change?) due to the magnitude of the stressor. [whether someone is at risk]

- **S = sensitivity** — the characteristics of a system or population and the governance/market structures that influence the degree to which it is affected by stressors [how severe it could get, if someone is affected]

- **A = adaptive capacity** — capacities of the system, sector or group to resist impacts, cope with losses and adapt to change [whether someone can deal with it]
Vulnerability = f (Exposure, Sensitivity, Adaptive Capacity)
More than One Way to Get at Vulnerability

- **Social**
  - SoVI – Socio-economic, demographic variables
  - SL – Sustainable Livelihoods Framework, based on 5 capitals (natural, physical, social, human, financial)

- **Social-ecological**
  - “Double exposure” (socio-econ. and env. stresses)
  - Mutual dependence and influence of climate/environment and human systems
Sustainable Livelihoods or Capitals Framework

**The 5 Capitals/Assets**

- **Human**
  - Skills, knowledge, information, ability to work, health
- **Natural**
  - Land, water, air, wildlife, biodiversity, green space
- **Financial**
  - Savings, credit, remittances, pensions, insurance, etc.
- **Physical**
  - Shelter, transport, water, energy, information infrastructure
- **Social**
  - Networks, groups, trust, access to institutions

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Vulnerability of Social-Ecological Systems
Key Analytical Approaches to Social Vulnerability

- **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

- **Scenario analysis**
  - Typically qualitative
  - Often participatory

- **Agent-based or decision-analytic modeling**
  - Participatory, small-scale
  - Decision-centered
  - Reveals underlying factors

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# Common Steps in a VA

## Steps in conducting a VA:

<table>
<thead>
<tr>
<th>VA step</th>
<th>VA component</th>
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<tbody>
<tr>
<td>1. Define study area together with stakeholders</td>
<td>Select the spatial and temporal scale of the assessment</td>
</tr>
<tr>
<td>2. Get to know place over time</td>
<td>Study context to understand the socio-ecological dynamics that may influence vulnerability</td>
</tr>
<tr>
<td>3. Hypothesize who is vulnerable to what</td>
<td>Select the climate hazard that will be analysed, along with the people, assets, and/or ecosystems services that may be harmed by the identified hazard.</td>
</tr>
<tr>
<td>4. Develop a causal model of vulnerability</td>
<td>Elaborate a model explaining factors, and relationships among the factors, that lead to vulnerability</td>
</tr>
<tr>
<td>5. Find indicators for the elements of vulnerability</td>
<td>Metrics to characterise different parts of the causal model (i.e. decide what is quantifiable and what must be omitted)</td>
</tr>
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<td>6. Operationalize model(s) of vulnerability</td>
<td>Weight and combine indicators to produce a measure of vulnerability; overly different indicators on a map</td>
</tr>
<tr>
<td>7. Project future vulnerability</td>
<td>Scenarios of the vulnerability variables reflecting trends and expert opinion. Clear explanation of assumptions/uncertainties around the scenarios.</td>
</tr>
<tr>
<td>8. Communicate vulnerability creatively</td>
<td>Products from the VA (e.g. reports, maps, websites, photos, video/film, etc.)</td>
</tr>
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(Hammill et al., 2013)
Why Bother?

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

Communication

Practical basis for policy and decision-making

Priority Setting
Addressing Social Vulnerability

- Builds community cohesion
- 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

No-regrets adaptation even if climate is uncertain
Social vulnerability assessment:
Step-by-step demonstration
Dr. Julie Ekstrom

A step-by-step demonstration of a spatial social vulnerability assessment
15 minute Coffee Brake

11-11:15 am
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Exercise 2: SVA in Emergency Preparedness & Disaster Response

Welcome to the World Café
In a friendly, hospitable space, explore meaningful issues in small groups, where

- everyone’s contributions are welcome, encouraged and needed
- people speak freely while others listen to understand (not to argue)
- diverse perspectives are being connected (not debated)
- all listen for deeper insights, move to new questions, and share their discoveries
Café Etiquette

Focus on what matters.
Contribute your thinking.
Speak your mind.
Listen to understand.
Link and connect ideas.
Listen together for insights and deeper questions.
Play, doodle, draw on butcher paper.
Have fun.
Format & Process

- Gather in even numbers around easels
- 1 facilitator per station
- Each station: a different aspect of hazard mitigation and emergency management
- The **EM** aspect stays at the station
- You move to a new station after 8 min
- You will move 3 times (4 sessions total)
Report-out: The Use of Vulnerability in Hazard Mitigation
Exercise 3: Use in long-term planning, development, adaptation

adaptation to climate change

- Long-term adjustment to changing average climate conditions (including benefits)
- Climate risk management (including weather extremes)
- Risk management of geophysical hazards

disaster risk reduction

Identification of risks and vulnerabilities

Stakeholder Engagement

- Planning, assessing and selecting options
- Monitor and evaluate
- Implementation
- Revise strategy and research; share lessons learned

Source: DFID: Convergence of Disaster Risk Reduction and Climate Change Adaptation (2008)

Source: NCA3 (2014)
Exercise 3: Use in Long-Term Planning, Development, Adaptation

For adaptation strategies to reducing long-term vulnerability, they must:

(1) address both human-induced and biophysical drivers of undesired climate & environmental change;

(2) open up and maintain a diversity of future response options; and

(3) nurture the kinds of human and institutional capacities that enable the uptake of those response options

Source: Adapted from Fazey et al.: http://www.esajournals.org/doi/abs/10.1890/080215
No-Regrets Strategies to Decrease Social Vulnerability

1. Social funds for community-based adaptation
2. Social safety nets for coping with natural disasters and climatic shocks
3. Livelihoods/economic development programs
4. Education and outreach to community
5. Capacity building within government
6. Improvements in local/cross-scale governance
7. Microfinance, insurance and other financial instruments

Source: Building on Heltberg et al. (2009)
Exercise 3: Use in Long-Term Planning, Development, Adaptation

- Work at your table on **ONE category** of strategies
- Brainstorm **4-5 specific strategies or actions** within that category

- Work through **worksheet** for each strategy:
  - Which vulnerable group does it aim to help?
  - How does it address a **deeper cause** of this group’s vulnerability?
  - How does it **open up and maintain response options**?
  - How can you nurture the human capacities to take up this response option?

- **30 minutes total**
How Will You Know It’s Working?

... and out there

- 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
- Indicators of socio-economic, educational attainment rising
- Functional, well maintained infrastructure
- Greener, well cared for neighborhoods

<table>
<thead>
<tr>
<th>What We Did</th>
<th>Training Goals: Better understanding of</th>
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<tbody>
<tr>
<td>Lecture Slides 5-10 Exercise 1 Lecture Slides 16-28 Ekstrom demo</td>
<td><strong>what social vulnerability is</strong> and <strong>how you can examine it</strong> (with/without technical background)</td>
</tr>
<tr>
<td>Lecture slides 30-31</td>
<td><strong>how addressing social vulnerability is useful</strong> even if you’re not legally required to do so</td>
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<td>Ekstrom demo Exercise 2, 3</td>
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Before you go...

We’d love your feedback!

For more info on our work:

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Thank you!