Disasters:
Risk, Vulnerability, and Resilience

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“The crucial point about understanding why disasters happen is that it is not only natural events that cause them. They are also the product of social, political, and economic environments... There is a danger in treating disasters as something peculiar, as events that deserve their own special focus.” – Wisner, Blaikie, Cannon, and Davis, *At Risk: Natural Hazards, People’s Vulnerability, and Disasters*
The Social Causation of Disasters

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Spatially varied, with unequal distribution of opportunities and hazards
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- Political and economic systems at national and international scales
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Root Causes

Limited access to:
* Power
* Structures
* Resources

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* Local institutions
* Training
* Appropriate skills
* Local investments
* Local markets
* Press freedom
* Ethical standards in public life

Macro-forces:
* Rapid population change
* Rapid urbanization
* Arms expenditures
* Debt repayment schedules
* Deforestation
* Decline in soil productivity
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Unsafe Conditions

Physical Environment:
* Dangerous locations
* Unprotected buildings and infrastructure

Local economy:
* Livelihoods at risk
* Low income levels

Social relations:
* Special groups at risk
* Lack of local institutions

Public actions and institutions:
* Lack of disaster preparedness
* Prevalence of endemic disease
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The Progression of Vulnerability
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Hazards

- Earthquake
- High Winds (cyclone, hurricane, typhoon)
- Flooding
- Volcanic Eruption
- Landslide
- Drought
- Virus
- Pests

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DISASTER

The Progression of Vulnerability

RISK = Hazard x Vulnerability
From Surveys and Secondary Data to Social Change
The BP Oil Spill

- April 20, 2010, Explosion of Deepwater Horizon drilling rig
- 11 dead, 17 injured
- Oil released for 87 days
- ~180 million gallons of oil spilled by September 2010
- Largest oil spill in U.S. history
The Gulf Coast Population Impact Project

• Phase I:
  – Town hall meetings and parent focus groups, July 2010
The Gulf Coast Population Impact Project

• Phase I:
  – Town hall meetings and parent focus groups, July 2010
  – Telephone survey of 1,200 parents living within 10 miles of the Gulf Coast, July 2010

• Key Findings:
  – Over 40% of the population living within 10 miles of the coast experienced some direct exposure to the oil spill.
  – Over 30% of parents reported that their children had experienced either physical symptoms or mental health distress as a consequence of the oil spill.
  – 20% of households experienced a decrease in income as a result of the oil spill, and 8% lost jobs.
The Gulf Coast Population Impact Project

• Phase I, 2010

• Phase II, 2012: Goals
  – (1) Identify most adversely impacted coastal communities in the affected region—from Panama City, Florida to western border of Louisiana
  – (2) Characterize ways that the oil spill impacted the health and lives of children and youth
  – (3) Identify resources and services that would be most helpful to these young people
Phase II: Approach

- Analysis of secondary data
- Household survey
- Community Engagement
  - Focus groups
  - Key informant interviews
Phase II: Approach

• Analysis of secondary data
  – National Oceanic and Atmospheric Administration (NOAA) oil spill data
  – BP individual and business compensation claims data

• Household survey

• Community Engagement
Individual Gulf Coast BP Claims

Individual BP Claims Per 1000
- 0 - 46
- 47 - 96
- 97 - 152
- 153 - 236
- 237 - 453

Claims Data Source: Gulf Coast Claims Facility (Downloaded 5/2/11)
Approach

• Analysis of secondary data

• **Household survey based on stratified cluster sampling**

• Community Engagement
Household Survey – Sampling Methodology

- **Objective:** Recruit a representative sample of (1) households with children between the ages of 3-18, (2) across a 4-state region, (3) among potentially highly-impacted communities
  - For sampling purposes, “community” was operationalized as a zip code
- Multi-stage sampling design to select community, census blocks, and households with children
- Oil Impact Index created using secondary data
- Resulting Z-score was rank-ordered, 15 highest impact zip codes selected, reflecting highest aggregate of compensation claims and oil exposure
Survey Instrument

• Exposure to the oil spill
  – Physical
  – Environmental
  – Economic

• Health effects
  – Respiratory
  – Skin problems
  – Mental health issues
Household Survey Team
## Household Response

<table>
<thead>
<tr>
<th>A</th>
<th>Households contacted (door knocks)</th>
<th>6,809</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Ineligible</td>
<td>2,193</td>
</tr>
<tr>
<td>C</td>
<td>TOTAL ELIGIBLE CONTACTED</td>
<td>4,616</td>
</tr>
<tr>
<td>D</td>
<td>Interviewed</td>
<td>1,437</td>
</tr>
<tr>
<td>E</td>
<td>Incomplete / Not available</td>
<td>310</td>
</tr>
<tr>
<td>F</td>
<td>No answer</td>
<td>2,669</td>
</tr>
<tr>
<td>G</td>
<td>Refused</td>
<td>200</td>
</tr>
</tbody>
</table>

- **Response rate** = \( \frac{D}{C} \)  
  - 31.1%

- **Cooperation rate** = \( \frac{D}{(C - F)} \)  
  - 73.8%

- **Refusal rate** = \( \frac{G}{(C - F)} \)  
  - 10.3%
## Exposure Data

<table>
<thead>
<tr>
<th>Table 1. Proportion of Children Exposed to Oil Spill Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>By State</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
</tr>
<tr>
<td>N</td>
</tr>
<tr>
<td>% Physically exposed</td>
</tr>
<tr>
<td>% Environmentally exposed</td>
</tr>
<tr>
<td>% Economically exposed</td>
</tr>
</tbody>
</table>

1 Physical exposure was based on parent reporting that the child participated in the oil cleanup activities and had direct contact with the oil or came into direct contact with the oil, tar balls from the spill or any oil spill cleanup material while engaged in other activities e.g. playing on beach, hunting, fishing or swimming.

2 Environmental exposure was based on parent reporting that the smell of oil was moderately to extremely strong.

3 Economic exposure was based on parent reporting that the household lost income or job since the oil spill.
# Health Effects on Children

## Table 2. Health Impacts on Children

<table>
<thead>
<tr>
<th></th>
<th>By State</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TOTAL</td>
</tr>
<tr>
<td>N</td>
<td>1,437</td>
</tr>
<tr>
<td>% with ANY health effect ***</td>
<td>41.5</td>
</tr>
<tr>
<td>% whose health worse since oil spill *</td>
<td>15.1</td>
</tr>
<tr>
<td>% with any PHYSICAL health effect post-spill *</td>
<td>33.3</td>
</tr>
<tr>
<td>% with RESPIRATORY effects **</td>
<td>18.1</td>
</tr>
<tr>
<td>% with DERMATOLOGICAL effects **</td>
<td>14.8</td>
</tr>
<tr>
<td>% with any MENTAL health effect post-spill **</td>
<td>21.6</td>
</tr>
</tbody>
</table>

* p < 0.05, ** p < 0.01, *** p < 0.01
Approach

• Analysis of secondary data
• Household survey
• **Community Engagement**
Approach

• Analysis of secondary data
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• **Community Engagement**
  – Focus groups with parents, grandparents, and children
  – Key informant interviews with health care providers, educators, advocates, and community leaders
Community Leaders and Advocates

Health Administrators

Mental and Physical Health Providers

Teachers and Nurses

Parents and Grandparents

Youth
Community Engagement and “The Story Behind the Numbers”
How Did the Oil Spill Affect Children Along the Gulf Coast?
Findings from the Gulf Coast Population Impact Study

Overview: Goals
- Locate and understand the effects of the oil spill on the health and well-being of children along the most-exposed areas of the Gulf Coast.
- Identify the resources and services that could be most helpful to these children.

Findings: Exposure
The research team interviewed parents and caregivers in 1,437 households from the Florida panhandle to the western border of Louisiana from April through August 2012.

Findings: Health Status
Parents reported significant health issues affecting their children since the oil spill, including breathing problems, skin problems, and anxiety and depression, among other issues.

Gulfport
- Exposed to Oil, Tar Balls, or Dispersant
- Exposed to Strong Smell of Oil
- Household Lost Income or Job

Skin Problems
- Gulfport: 24%
- 4 State Region: 15%

Breathing Problems
- Gulfport: 33%
- 4 State Region: 18%

Any Mental Health Problems
- Gulfport: 44%
- 4 State Region: 22%

This project is funded by the Baton Rouge Area Foundation

The National Center for Disaster Preparedness (NCDP) is an academically based research center dedicated to the study, analysis, and enhancement of the nation’s ability to prepare for, respond to, and recover from major disasters, including terrorism.

www.ncdp.mailman.columbia.edu
Community Engagement and “The Story Behind the Numbers”

• Key Themes

• Impossible to disentangle the oil spill from other disasters

• Acute stressors layer upon chronic stressors
  – Disasters +
  – Economic recession + lack of health care access + fewer jobs + unstable housing + food insecurity + vanishing way of life + parental despair...
Community Engagement and “The Story Behind the Numbers”

• Key Themes
• Impossible to disentangle the oil spill from other disasters
• Acute stressors layer upon chronic stressors
• Stressors result in more social, educational, health, behavioral issues among children and youth
  – Mental and physical health issues
  – Unsupervised children and delinquency
  – Drug and alcohol use
  – Fighting and the “corrosive community”
  – Risky sexual behavior
  – “The only thing to do around here,” said one community leader, “is go fishing, get high, or get pregnant. You can’t go fishing anymore, so you figure out what they are doing.”
Community Engagement and “The Story Behind the Numbers”

- Key Themes
  - Impossible to disentangle the oil spill from other disasters
  - Acute stressors layer upon chronic stressors
  - Stressors result in more social, educational, health, behavioral issues among children and youth
  - What do children and youth need?
Y1: I tried to get involved in oil spill cleanup and we called and we called and you had to be 18 or so to help clean up.

Y2: We were only 15.

Y3: With all that, we really think there should be some outlet for the youth to get involved after disasters. Just some kind of outlet.

Y1: We offered several times, filing the paperwork, they were like, basically, “You might get a paper cut and sue us.” [laughter] But we just want to make a difference.

Y4: You feel so helpless, especially as a youth, it’s your community and you have this pride for your community and you see it hurt and you want to fix it, but—

Y3: We weren’t old enough to work, so we had to just sit home and do what we could. If you were able to funnel some of that energy, it would help us a lot more to get your mind off of it, you can emotionally feel like you’re helping, and it brings a lot of good out of it....
What do children and youth need?

Skills  
Hope  
Opportunities  
Recovery  
Engagement  
Line
What
Project-Based Learning
Where
Gulfport High School
Ben Franklin High School
South Lafourche High School
Grand Isle School
Bryant High School

shoreline
youth helping youth recover from disaster
How
Identify Teacher-Sponsors
Recruit the Students!
Thank you!

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