

Logistics & Network/Organizational Coordination

Co-leaders

Barry Goodno (Georgia Tech) and Jun Zhuang (SUNY Buffalo)

Participants

Jean-Robert Altidor (Bureau of Mines and Energy, Haiti),
Louise Comfort (U. Pittsburgh), Ozlem Ergun (Georgia Tech),
Jose Holguin-Veras (RPI), Catherine Peters (Princeton),
Deborah Thomas (U. Colorado), Tricia Wachtendorf (U.
Delaware)



- Information/Knowledge Systems:
 - Knowledge infrastructure, virtual sharing platform, multi-jurisdictional, multi-lingual, data acquisition, data archive
- Technology/Knowledge transfer:
 - Locals
 - Across organizations

Disaster response networks:

- Cascading effects when infrastructure breaks down, system interdependencies
- Understanding multi-layer nature of networks (integration, physical/social/informational/ etc.)
- Performance characterization: fragility, scalability, reliability, redundancy, connectivity, coverage, interdependences
- Adaptability to changing conditions
- Qualitative analyses / Mathematical modeling / Simulation
- Degree of centralization appropriate to the context
- Appropriate balance between efficiency and equity
- Evaluation of impacts of alternative response scenarios (social costs, social benefits)

Communication and Coordination

- What/How/When/To Whom to share?
- Inter Organization/Network
- Intra Organization/Network
- Reconciliation of varying degrees of proficiencies /capabilities
- Design and management of the networks (incentives, penalties...)
- Impacts of organizational culture: challenges, possibilities, characterization/typology
- Longitudinal/long term studies

Risk Management, Complexity, and Complex Events

R. Davidson and J. Yates

**A. Pierre, J. Pauschke, J. Mitrani-Reiser, H. Rhody, A.
Irfanoglu, M. Eberhard, C. Li, J. Yen**



Summary Discussion

- Development of methods to support resource allocation for disaster risk reduction at the international, national, and local levels
- Develop and validate better risk assessment models and tools to support risk management, particularly in:
 - Developing regions
 - Regions with limited resources, degrading natural environment
 - Regions with very limited information (e.g., inventories)
 - Regions with multiple hazards (e.g., earthquakes, hurricanes, climate change)
 - Cities characterized by primacy
- How to incentivize earthquake risk reduction for various stakeholders, particularly in areas with infrequent earthquakes
- Better articulate the costs and benefits of earthquake risk reduction so that it can be compared to other societal demands (e.g., health care, education)



Summary Discussion

- Relationship between disasters and development
 - Development of better conceptual frameworks and quantitative models to capture the complex interactions and feedback loops of the various sectors and issues.
 - Development of better tools to support disaster risk management and development decisions in an integrated fashion
- Risk management for critical infrastructure, especially cascading effects. Infrastructure interdependencies.
- Methods to effectively develop, implement, and coordinate risk management strategies across organizational levels, especially in the presence of numerous independent organizations



Breakout Session #3

Sustainability, Capacity & Capacity Building

Leaders: Khalid Mosalam and Alexandros Taflanidis

Participants: Norma Alcantar,

Roger Bilham

Reginald DesRoches,

Cecilia Gonzalez-McHugh,

Franco Montalto, and

Scott Olson

Definitions

- **Sustainability**: Ultimately provide integrated solutions based on locally available resources and respectful of Haitian culture. Extend to
 - Economic
 - Education
 - Social
 - Environmental
 - Infrastructure
 - ...
- **Capacity**: Initial learning process on behalf of the researchers to understand local practices and existing capacity so that can later build on it.
- **Capacity Building**: As a first stage, train or get people to join in field work. Disseminate knowledge in a reverse pyramid scheme. Ultimately **empower** Haitian people.

Goals and Stakeholders

- Goals
 - Resilient community, constructed by the Haitian people so that it is ultimately sustainable
 - Tailor the education system to enable and expand the capacity of the Haitian people to provide a resilient community
 - Demonstrate that mitigation techniques can provide solution to similar environments
- Stakeholders
 - **Haitian people**
 - Local government
 - Rest of research community

Research Needs and Barriers (1/3)

Fundamental Knowledge (Knowledge Base)

- Collaborative research integrating Haitian needs
- Fundamental research in applied and Haitian context (indigenous materials, acknowledging all constraints)
- Understanding motivations behind corruption and incentives to prevent it
- Material properties and development of new/alternative materials relevant to Haiti
- Assessment of building constructions (especially in situ)

Research Needs and Barriers (2/3)

Enabling Technology (Technology Base)

- Monitoring and quality control
- Inspection program
- Integration of governance responsibility
- Social context of suppressing corruption
- “Sustainable” building code

Research Needs and Barriers (3/3)

Systems (Technology Integration)

- Life cycle assessment of integrated infrastructure solutions and impacts to Haitian society
- Continual educational opportunities associated with promoting sustainability

Community Resilience, Social Structures & Social Capital

Co-leaders

John Bevington, James Kendra

Participants

**Johan Bollen, Ann-Margaret Esnard, Robert
Fleischman, Emal Ganapati, Guitele Rahill, Alka Sapat**



Community Resilience, Social Structures, and Social Capital

BROAD THEMES DISCUSSED

- Building resilience; ways in which resilience can be developed. Broad construction of types of resilience (e.g., physical, social), including local concepts. How to rebuild differently in terms of reducing vulnerability while recognizing challenges of social justice and equality/inequality
- Understand juxtaposition of resilience/vulnerability (contested terms)
- Need to mobilize local capacity (existing institutions, community level, faith-based approaches)
- Identify scale of analysis (what is the community?). Basic need for developing any plan or initiative whether from international to local level.
- Local knowledge.

- Social capital (how social capital develops, grows, or dissolves; negative social capital or negative consequences). Mapping of pre-existing social capital versus post-disaster conditions, analysis of social context
- Infrastructure, suited to possibility of next large earthquake. Balanced immediate versus long-term needs. Combining urban planning with response needs.
- Grassroots economic initiatives; effectiveness of microcredit and microenterprises.
- What is resilience; transferability of resilience metrics and thresholds; identifying existing resilience (multiple scales; rural/urban).
- Relationship between/integration of social capital and human capital

RESEARCH QUESTIONS

What are the benefits and downsides of social capital? And how do we understand relative components of social, human, economic, and physical capital in overall resilience? To what extent are they substitutable?

How do we map and analyze the social networks to understand effects of system disruption? What is needed for “graceful degradation” and optimized interventions?

How do we evaluate social capital (how social capital develops, grows, or dissolves; negative social capital or negative consequences). Mapping of pre-existing social capital versus post-disaster conditions, analysis of social context

How do we define resilience in Haiti, and how do local conditions affect concepts of resilience?

What are the elements of local capacity that have displayed resilience in past?

Community Participation & Education

Facilitators

David McEntire and Liesel Ritchie

Sean Gulick, Jane Harrison, Stephanie Lansing, Kevin Meehan, Mimi Sheller



Summary Discussion

Community Participation & Education

General Consideration

- Using schools (at various levels) as a resource to help identify and frame research questions in Haiti; involve them in helping us to understand appropriate technologies
- Identify what local organizations (Haitian-led) are operating and who the formal and informal community leaders are
- Participation and involvement of Haitians are critical to the sustainment and long-term viability of efforts in Haiti
- Within the NSF world, one person's broader impact is another person's research topic



Potential Research Questions

Community Participation & Education

- What types of participatory processes do local Haitians use?
- How has the earthquake impacted Haitian research priorities?
- How can Haitian faculty and students be more actively involved in research in Haiti?
- Find/develop avenues to engage with Haitian researchers
 - What are extant capacities?
 - Current research efforts?
- What is the existing extension/outreach organizational structure in Haiti?
- What are the impacts of the education and training components in building capacity and in fostering community participation?
- How can we work toward an integration of knowledge created by NSF research (e.g., databases, products)? (A research equivalent of ReliefWeb – what are possible mechanisms for this? Private? Agency?)
- How can the research that we are doing inform and educate the practices of international response efforts (e.g., by NGOs)?
- How can Haitian community assets be better utilized by the international response community?
- What types of incentives (e.g., training? cell phone minutes? money?) are most likely to motivate changes in behavior?



Potential Research Questions

Community Participation & Education

- What are the root causes of the barriers to and facilitators of community participation and education?
- If you build education capacity in rural areas, does it stop the brain drain and result in a “reverse flow?”
- What are the appropriate undergraduate and graduate programs that need to be developed in Haiti? What are the gaps and critical education needs?
- How can we better understand where and how Haitian intellectuals are getting their advanced education?
- How can the Haitian diaspora effect/impact/maximize participation in community education?
- What are the most effective media formats and technologies for information dissemination and community participation?
- What are the most effective models of engaging in interdisciplinary/multidisciplinary/transdisciplinary research?

