Deliberating Disaster: Building Back Faster, Stronger, Greener and Fairer

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MISSION STATEMENT

Uniquely positioned geographically and culturally, the National Disaster Preparedness Training Center at the University of Hawai‘i Mānoa will develop and deliver disaster preparedness, response, and recovery training to governmental, private, and non-profit entities, incorporating urban planning with an emphasis on community preparedness and vulnerable at-risk populations.
NATIONAL DOMESTIC PREPAREDNESS CONSORTIUM

NDPC mission...

To enhance the preparedness of federal, state, local, and tribal emergency responders/first receivers and teams, including non-governmental organizations and the private sector, to reduce the Nation’s vulnerability to incidents involving weapons of mass destruction, terrorism and all-hazard high-consequence events by developing, delivering and assessing plans, training, technical assistance and exercises.

NDPC history...

• Originally established by Congressional Mandate September 1998 (House Conference Report [H.R.2267]).
• Membership based on the urgent need to address the serious counterterrorism preparedness needs of our nation’s emergency responders within the context of chemical, biological, radiological, and explosive (Weapons of Mass Destruction [WMD]) hazards.
• Expanded to address catastrophic all-hazards events.
• Re-authorizer in Homeland Security Legislation January 2007 in HR-1 through FY 2011 and two new members were added to the Consortium (TTCI and UH).
Building Capacity Through Training/Education of Urban Planners

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Teachable Moments...

- Magnify what works/does not
- Expose underlying weaknesses
- Reveal who has power, access, information
- Early warning systems
- Preparedness and response capabilities
- Resilience: redundancy, flexibility, recoverability, excess capacity, limited failure
Training/Education/Capacity Building

• Integrate Recovery and Planning
• Urban and Regional Planning
• Planning Approaches and Tools
• Recovery is least understood part of disasters
• Measures of Success? Recovery Metrics?
• Deliberating Disaster – Kettering Project
• Civic Infrastructure: before/during/after
• Disasters and Democracy
• Resilience and the “Ecology of Democracy”
Implications for Training Courses?

• Who to train?
• Learning objectives?
• Exercises? Tabletops?
• Scenarios?
• Design Charrettes?
• Workshops?
• Modalities: (online/F2F, blended)?
Journal of American Planning Association
Special Issue on Disaster Recovery

• Federal Role - NDRF
• 87 Recovery Plans
• Chile, Japan, China, NOLA
• EQ/Tsunami/Floods/Storms
• RVA – Mitigation/Adaptation
• Relocation/Resettlement
• Land Swaps
• Scenario Planning/Deliberation
APA PAS Rpt 576
Planning for Post Disaster Recovery: Next Generation

- Vision; Goals; Roles, Tools
- Sandy -> Resilience
- Risk -> Resilient Mgmt
- Plans, Planning, Processes
- Legal/Authorities
- Milestones/Timetables
- Measures of Success
Gavin Smith/Stakeholder Analysis

High

Resource Rules

Nations
Federal governments
State governments
Financial institutions
Insurance
Businesses
Colleges and universities
Media
Professional associations
Regional planning organizations
Special districts
Community development corporations
Common interest communities
Foundations
Nonprofits
Local governments
Emergent groups
Individuals

“Zone of uncertainty”

Low

Understanding of Local Needs

High
Effective DRR = Adaptation
Puna – Multiple Hazards

Figure 12

Legend
- State Routes
- Possible Impacted Road: State
- County Routes
- Possible Impacted Road: County
- Agricultural Study Area

Person/Acres
- 0
- 0.002 - 0.111
- 0.111 - 3.064
- 0.094 - 2.069
- 0.579 - 0.079
- 0.579 - 2.062
- 0.579 - 2,062
- 2.062 - 4.042
- 4.042 - 8.089
- 8.089 - 16.172
- 16.172 - 32.344

- Lava enters crack system
  500 m (1640 ft) elev

- Lava exits crack system
  422 m (1400 ft) elev

- June 27th flow

- Sept 10 flow front
  373 m (1225 ft) elev
Volcano: Slower Onset Hazard
Adaptation to Volcano Risks
Adaptation to Volcano Risks
Adaptation to Volcano Risks
Adaptation to Volcano Risks
Adaptation to Volcano Risks
Adaptation to Volcano Risks
Zoning/Land Use/Planning

• Zoning
• Setbacks
• Site Plan Reviews
• Height and Bulk Regulations
• Floodplains
• Wetlands
• Development
• Other hazards....
Definition of Resilience
Rockefeller Resilience Pilars

1. Constant Learning
2. Fast Recovery
3. Safe Failure
4. flexibility
5. Spare Capacity

Q: Does this apply to civic infrastructure?
Robert T. Stafford Disaster Relief and Emergency Assistance Act

Developed the System of Federal Disaster and Emergency Declarations.

- Provides Framework for allocating and distributing funds for Disaster Assistance Programs:
  1. Federal Assistance Supplements State and Local Relief and Recovery Efforts;
  2. Triggered by a Governor’s request for assistance and then a Presidential Declaration;
Focus on Capabilities/Assets

Plan Together
Train Together
Respond Together

Underlying Community Conditions
Disaster Impacts

Social & Environmental Justice
Social Infrastructure
Planning & Development
Mitigation
Preparedness
Response and Recovery
National Disaster Recovery Framework
Key Element #3: Recovery Support Functions (RSFs)

RSFs are led by designated Federal coordinating agencies at the national level:

- Community Planning and Capacity Building (DHS/FEMA)
- Economic (Commerce)
- Health and Social Services (HHS)
- Housing (HUD)
- Infrastructure Systems (USACE)
- Natural and Cultural Resources (DOI)
Figure 6. A Model of Recovery Activity

- **Periods:**
  - Emergency
  - Restoration
  - Reconstruction I
  - Reconstruction II

- **Capital Stock:**
  - Damaged or Destroyed
  - Patched
  - Rebuilt (Replacement)
  - Major Construction (Commemoration, Betterment, Development)

- **Normal Activities:**
  - Ceased or Changed
  - Return and Function
  - Return at Predisaster Levels or Greater
  - Improved and Developed

- **Maximal Coping Activity**
  - Completion of Search and Rescue
  - End of Emergency Shelter or Feeding
  - Clearing Rubble from Main Arteries

- **Minimal Coping Activity**
  - Restoration of Major Urban Services
  - Return of Refugees
  - Rubble Cleared

- **Sample Indicators:**
  - Time in Weeks Following Disaster
  - Attain Predisaster Level of Capital Stock and Activities
  - Completion of Major Construction Projects
Hilo 1960 Tsunami

- Chilean Earthquake 9.5 magnitude
- 1,655 killed/3,000 injured
- 61 killed in Hawaii
- Wave Run-up 25 meter (10.7 in Hilo)
- 8 tsunami waves
- Much of Downtown Hilo destroyed
- 1946 Aleutian Earthquake
  - 159 killed
  - Geodetic Survey Seismic Sea Wave Warning System
Long-term Recovery Research

- Lynham, Noy, Page (2012) University of Hawaii
- **Synthetic control method** (Abadie, et. al., 2010)
- Compare Hilo (Hawaii County) to other areas
- *Island setting allows for long term measurements/comparisons with other islands*
- 15 years after tsunami, unemployment 32% higher; population 9% lower; # of employees and ag production lower than it would have been **had the tsunami not occurred.**
Lessons in Recovery
1960 Tsunami: Many Tools

- Planning and Land Use Control
- Use parks/open space as buffers
- Redevelopment Authority
- Bonds/Commercial Loans/Assistance
- Conveyance of Public Land
- Increased investment research/public education/warning systems
- Importance of Survivor Stories
- Pacific Tsunami Museum
40 M NBZ – Haiyan/Yolanda
Need Land for Redevelopment/Relocation/Housing/Livelihoods

- Erosion Damage
- Wave Damage
- Wind Damage
Logjam in Recovery/Resettlement
Banda Aceh Recovery
Tsunami Museum/Banda Aceh
Tsunami Evacuation Buildings

Legend
Coverage Area
Time Access (minutes)
Existing Tsunami Escape Building
Building Occupancy
Roads
Fish Pond Area
Muaras, Banda Aceh (Study Area)

Mainland of Aceh
Indian Ocean

Legend
Coverage Area
Time Access (minutes)
Existing Building
New Building
Building Occupancy
Roads
Fish Pond Area
Muaras, Banda Aceh (Study Area)
Governance of Recovery

• Institutional Frameworks for Recovery...

• Discussion:
  – **What is recovery?**
  – **Who should be involved?**
  – **Stakeholders?**
  – **Phases of Recovery?**
  – **How can pre-disaster planning support recovery?**
  – Top-down (Recovery Czar) v. Bottom-up (Deep community engagement)
  – **Specific Tools and Policies**
Faster: NYC Rapid Restoration

Hurricane Sandy, New York City Rapid Repair Program all five boroughs. Emergency repairs for residential properties allowing residents to remain in their homes with quick restoration of heat, power, and hot water.

Source: NY Times
Stronger: Hilo, Hawaii

Following the 1960 tsunami, Hilo restructured its land-use. Instead of rebuilding damaged areas, parks and opens space were created, new developments and industrial districts created in safer areas.

Source: USGS
Greener: Greensburg, Kansas

2007 EF-5 tornado, Greensburg, Kansas incorporated sustainable community design into its recovery plan. Integrating green solutions into recovery: energy efficiency, renewable energy, “make wind our friend” a model of resilient sustainability and sustainable resilience…

Source: Greensburg, KS
More Equitably: Gulf Coast Community Design Studio

Following Hurricane Katrina, the GCCDS was established in Biloxi, Mississippi to provide architectural design services to organizations and communities along the Gulf Coast. Gulf Coast Community Design Studies has rebuilt hundreds of homes for low income, minority, and immigrant families....

Values
Uncertainty working space
What’s Most Needed?
Integration: technical, local, procedural
“One household at a time....”

Source: GCCDS
RECOVERY TRADE-OFFS

PRO

CON

POLICIES & TOOLS

EXAMPLES

FASTER

STRONGER

GREENER

MORE EQUITABLY
PERTIMBANGAN PRIORITAS PEMULIHAN

LEBIH CEPAT
LEBH KUAT
LEBIH “HIJAU”
LEBIH MERATA

PRO

KONTRA

KEBIJAKAN & INSTRUMEN PERENCANAAN

CONTOH – CONTOH
## Recovery Tradeoffs

### EXAMINING APPROACHES TO DISASTER RECOVERY

Disasters are rare events that cause deaths and injuries, as well as property losses and significant disruptions in a community. They are different from ordinary emergencies, because they overwhelm local capacity to respond, provide relief, and recover. While we tend to focus on the physical destruction associated with tornadoes, hurricanes, flooding, and acts of terrorism, disasters also wreak havoc with our systems of governance and community engagement. During crises, we hope for swift, informed, community engagement. During disasters, we hope for swift, informed, community engagement. During disasters, we hope for swift, informed, community engagement. During disasters, we hope for swift, informed, community engagement. During disasters, we hope for swift, informed, community engagement.

### BUILD BACK FASTER

Under this approach, disasters are seen as events which disrupt the normal system of participation and engagement but these are temporary, hopefully, short-term impacts. Build on what was there before, restore and bring back on-line the democratic processes for planning and building back community as quickly as possible.

- Fast-track permits
- Reduce red tape
- Facilitate funding
- Restore what was lost
- Top down, Redevelopment Czar
- ICS ➤ Recovery Operations
- P.D.R.P. (Pre-Disaster Recovery Plan)

### BUILD BACK STRONGER

Rebuilding homes or businesses after a disaster is the right time to incorporate change to prevent future disaster damages. Rebuild structures and communities should be able to better withstand future hazards.

- Stronger building codes
- Improved land use planning
- Stronger permitting inspection
- CRS (Community Rating System)
- Buyouts/
- Eminent Domain
- Lot Consolidation
- Land readjustment

### BUILD BACK GREENER

Another approach focuses on the need for significant change in the community following disaster. Simply going back to what was there before is not sufficient. Disasters provide an opportunity to rethink not just the physical environment, but also the management of energy, water, and other resources, to achieve greater efficiencies and increased sustainability.

- Environmental assessments.
- Energy audits
- Ecosystem services
- Education
- Green buildings
- Greener lifestyles

### BUILD BACK MORE EQUITABLY

Disasters expose inequities and weaknesses within our systems of hazard identification, alerting and informing vulnerable populations, and those at-risk of harm. Disaster discourse and deliberation should concentrate on identifying vulnerable populations and ensuring that their risks from disasters are reduced. Concentrating most on those most harmed by disaster will help to build resilience against future disasters.

- Rebuild low income/socially disadvantaged areas first?
- Prioritize based on social status
- Assess needs prior to event
- Elderly, poor, minority groups, should be helped the most

### WHAT CAN BE DONE?

- Improved social welfare
- Less dependency leads to great self sufficiency
- Reduce suffering
- Safer, happier communities
- Co-benefits

- Expensive – More conflict
- Social engineering
- Requires gout intervention
- Harder to measure success
- Harder sell

### SUPPORTERS

- Lost voices for change
- Less interruption but higher long-term risk
- Speed vs. deliberation

- Little Risk Reduction
- Hide vulnerabilities
- Democracy compromised
- Lost opportunity
- Status quo benefits (at best)

- Lost voices for change
- Less interruption but higher long-term risk
- Speed vs. deliberation

### OPPONENTS

- Scariest
- Biggest change
- Higher taxes
- Business vs. Social justice
- More expensive
- Less interruption but higher long-term risk
- Speed vs. deliberation

### TRADE OFFS

- Rebuild low income/socially disadvantaged areas first?
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6 democratic Practices:
1. Naming
2. Framing
3. Deliberation
4. Resources
5. Civic actions
6. Learning
Framing, *Tradeoffs*, Deliberation

**Speed v. Deliberation**
**Status Quo v. Change**
**Power Elites v. Empowerment**
**Green Building v. Traditional Approaches**
More Questions than Answers...

• What are strategies for “building back better?”
• Does it depend on the hazard? Natural, Tech, Complex?
• Multi-hazard, Collective Risk Management?
• Strong Regulations or Strong Design Ethic?
• Faster? Stronger? Greener? More Equitably?
• Other goals? How do you measure success?
• What investments in our civic infrastructure are needed to sustain deliberation before/during/after catastrophic events?
• Social Capital: Bridging, Bonding, Linking Across Borders, Boundaries, Domains, Space, Disciplines, Communities, Ecosystems, and Cultures
Social Capital and Recovery

- “Connections among individuals” (Putnam, 2000)
- Resources embedded in networks...
- *Economic, human, natural, social capital*
- Number willing to help, extent of help, nature of help (Flip, 2001)
- Civic engagement, social participation, trust
- Norms of reciprocity – how to build a social infrastructure for supporting recovery
- **Back to basics** – environmental management, sustainability, improving transportation and communications networks, and strengthening governance.